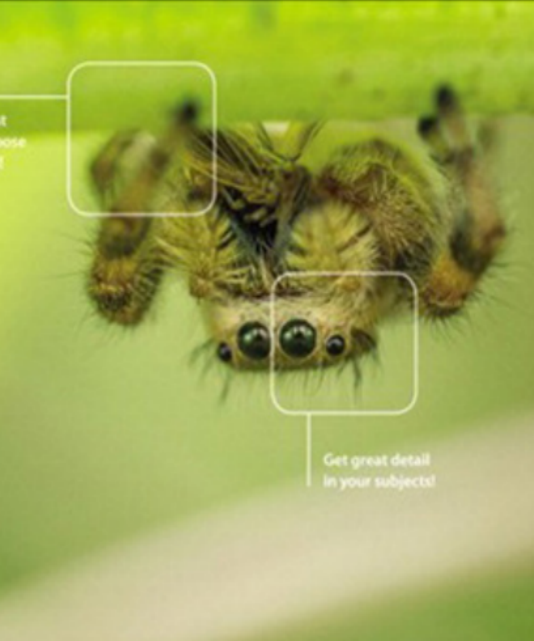


Macro Photography

From Snapshots to Great Shots



Learn the best
ways to compose
your pictures!

Get great detail
in your subjects!

Rob Sheppard

Macro Photography

From Snapshots to Great Shots

Rob Sheppard



**Peachpit
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Macro Photography: From Snapshots to Great Shots

Rob Sheppard

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I dedicate this book to my beautiful wife
whose support and love always keep me going.

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Introduction



ISO 200 • 1/320 sec. • f/11 • 300mm (MFT)

Welcome to a Special World

Close-up and macro photography have become easier to do and more accessible for all photographers. Even point-and-shoot cameras often have a close-up mode, some allowing shots as close as an inch away from the subject. For the photographer with a DSLR, the options for close-up work expand greatly and are explored in this book.

One of the very cool things about close-up work is that it allows you to take a picture of a subject to see it better. We don't often get in close to the world and so many of the small details pass us by. Any close-up photo will show you detail that is largely unseen by all of us, and certainly if we only casually look at the subject.

This book will show you a whole range of techniques to truly take you beyond the snapshot and get you great shots. But I will warn you—this type of shooting can be addicting! Since you can do it almost anywhere, you may find yourself constantly discovering new subjects up close all around you, which can be frustrating if you don't have a camera nearby.

I want you to feel encouraged as you explore some amazing worlds of the close-up. Sometimes photographers feel inadequate next to more advanced photographers, feeling they need more knowledge, different gear, and so forth. While it is true that experience can help you with the craft of photography and with better realizing your vision as a photographer, you also can take wonderful close-up photos with whatever your skill level and whatever your gear. This book will offer some ideas to help you grow as a photographer of the details around us. But don't let anyone keep you from experimenting just as you are right now, even if you are still learning.

Do you know what the best gear is? The gear you have and can use right now. The gear that sits on “Someday Isle” isn't helping you right now, and it might never be useful to you. This book will tell you how to choose and use gear for close-up work and also what true macro gear might actually be.

I'm going to show you how to deal with sharpness challenges up close and offer some techniques so you can get images as sharp as the pros do. I'm also going to offer some ideas on why different focal lengths can be important for good close-up work, focal lengths you may already have but just need the right accessory to help you focus closer. In fact, sometimes a true macro lens can keep photographers from their potential with close work because it is only one focal length.

Light is of course critical to any photography, but there are some nuances to working with it up close. You will learn how different types of light affect the close-up subject and even how these nuances can affect how you photograph. Light can change the approach you need for close-up work. You'll also find some information on using added light up close, such as flash and LED lights.

Finally, I want to help you try your skills with all sorts of subjects, so I include a chapter on getting close to different subjects. You will find a variety of subjects scattered throughout the book in the photos I have

chosen because I want to encourage you to engage with different subjects with your own photography. If you are in a location with an iconic scene such as a range of mountains, your choices for subject matter are somewhat reduced when doing landscapes. But with close-ups, your subject matter is unlimited. Without even leaving the parking lot, you could spend a great deal of time exploring the macro world around you.

Above all, I hope you have fun. We don't even have to change that Star Trek imperative to have it work without ever leaving earth! "Explore strange new worlds, to seek out new life ... to boldly go where few [photographers] have gone before."

1. Exploring New Worlds



ISO 200 • 1/60 sec. • f/5.6 • 60mm lens (MFT)

Photography and discovery

I love close-up and macro photography. This truly is a different world for most people and most photographers. When you and your camera get in close to things, what you discover can be amazing, unique, and remarkable. We simply don't usually spend time looking at most things around us with a close-up point of view. Yet, when you start doing that, you will discover that going to Africa or some unique

national park is *not* the only way to find unusual photographs. I am going to help you find those striking new images by helping you really spend some time up close.


In this book, I am going to offer you my best ideas on how you can get better pictures up close. I have been photographing close-ups since I was a kid. My first published nature photographs, including close-ups, were printed when I was in my late teens. I want to offer the awesomeness of the close-up and macro experience to you because I want you to also enjoy getting close to nature and finding better pictures there. Let's have some fun!

Poring Over the Picture

I love spending time in botanic gardens because of the richness of close-up possibilities always there. My wife and I came across this snowdrop bush in the Rancho Santa Ana Botanic Gardens in Claremont, California. This was in February, so we had to share our “snow” with our friends and relatives back in Minnesota and Maine. I did not have my tripod so I needed to use a fast shutter speed. I chose a wide aperture to allow for the 1/400 sec. shutter speed, and this also gave me the chance to work with some beautiful shallow depth of field that worked nicely with the flowers and light.

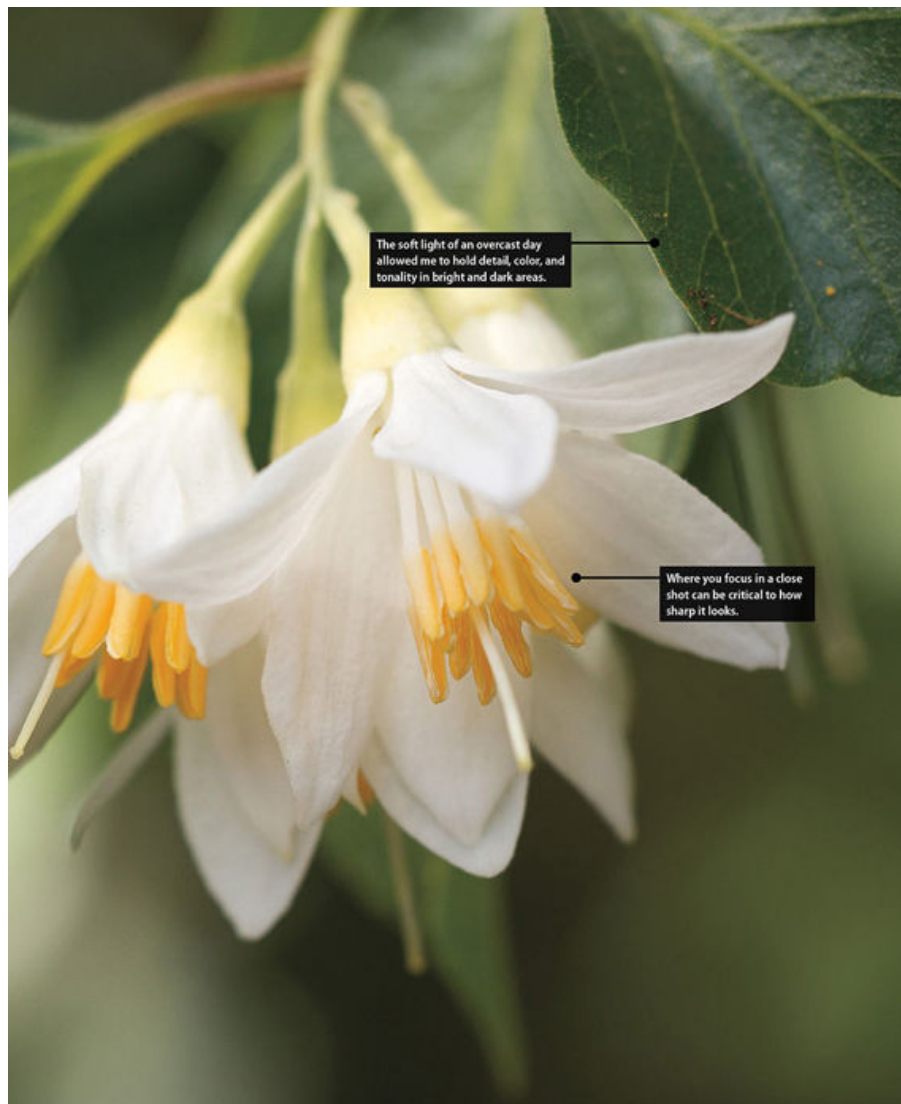


ISO 200 • 1/400 sec. • f/2.8 • 60mm lens (MFT)

A close-up photograph of a white flower, possibly a lily, with large, vibrant green leaves. The background is heavily blurred, creating a soft, out-of-focus effect. Two text boxes with leader lines point to specific areas of the image: one points to the far background, and the other points to the soft image around the subject.

The far background is totally out of focus, creating a lovely look. The visual quality of out-of-focus areas is called the bokeh of a photo.

By shooting at the widest aperture the lens had, $f/2.8$, I could create a lovely soft image around the subject.



World of the Small

Kids are often more attuned to the small details of the world around us than we are as adults. Partly that's because they are a lot closer to things than we are as we walk around at our full height above the ground. Let's be realistic—as we get older, there is no question that it is harder to get down and then back up again, especially compared to kids!

Also, it's because kids are often more curious about little things that are around them, catching bugs and picking flowers without worrying about getting dirty or what they might look like doing that. We get so caught up in the rush and bustle of everyday life that we forget to stop

and smell the roses...let alone photograph them!

Yet this world of the small can be exciting, beautiful, colorful, shocking, and more if we are willing to stop, look, and photograph. Close-up and macro photography definitely encourages us to get down and get dirty with the small things in the world around us. Scientist/photographer Piotr Naskrecki offered a great name for things in this world, “the smaller majority,” in his book of the same name. These little things, from insects to flowers and much, much more, are indeed a majority of things in the world. That alone can be a good reason for working up close with your camera and lens.

Now here’s a seeming paradox: By going small, you can go big, very big. How is that possible? By getting in close to the small things, that smaller majority, we actually see more of the beauty of the world. The world becomes a bigger place! There is no question that close-up and macro photography have helped me experience and appreciate a greater range of beauty in nature and in life. That makes life all the more fun.

That’s true! It’s great fun! Most of us are never going to explore some exotic mountain range in Asia, dive to some little-known trench in the ocean, or visit outer space. But there are new worlds ready for us to explore all around us. Because we generally don’t spend much time down low and up close, as soon as we start working with our camera that way, we truly enter new worlds, sometimes not even having to leave our backyard (**Figure 1.1**).



ISO 100 • 1/125 sec. • f/2.8 • 50mm lens (APS-C)

Figure 1.1 This gulf fritillary butterfly was photographed on

an ornamental yucca plant in my garden.

Amazing Nature

Even though I have been photographing for most of my life, I never cease to be amazed by what I find when I start looking for close subjects. I have felt privileged to witness spiders building webs, flowers with a stunning diversity of color, spitting caterpillars, racing centipedes, life-and-death struggles, and forms and patterns that leave me in awe.

I also love the bigger parts of nature. I enjoy visiting and photographing landscapes all across the country. Our country has a well-deserved reputation for preserving some stunning locations in national and state parks, and there are even more great landscapes to photograph when you start looking for them. My book, *Landscape Photography: From Snapshots to Great Shots*, came from my long work in natural landscapes, which also started when I was quite young. I love landscape photography, too!

But I think I would get bored if all I did was landscape photography. Landscapes are great, but there's only so much you can do with any given landscape as a photograph. On the other hand, there's always amazing things to be found up close all around once you start looking. This goes back to that paradox: By going small, you end up going big. By looking for the small things in a national park—for example, by going beyond the obvious big landscapes—you gain the beauty of both the big and the small, and the combination gives you something bigger than would be possible from either alone, as seen in [Figures 1.2](#) and [1.3](#).



ISO 200 • 1/100 sec. • f/11 • 12mm lens (MFT)

Figure 1.2 Aspens and mountain peaks at 10,000 feet in Great Basin National Park, Nevada.



ISO 200 • 1/500 sec. • f/9 • 60mm lens (MFT)

Figure 1.3 Ant on aspen tree at 10,000 feet in Great Basin National Park, Nevada.

Plus you will gain a whole new set of photographs. And I will guarantee you will present a picture of the location from your images that simply cannot be achieved any other way.

Photograph Anytime

In fact, one of the terrific things about close-up and macro

photography is that you can get great shots at any time of day. Landscapes often don't look that good in the middle of the day, wildlife can be hard to find in the middle of the day, and if you're traveling, midday will often give you dull and uninteresting light for everything from scenics to shots in town.

In addition, if you're photographing a big scene like a mountain landscape and you don't like the angle or the light, it's often not easy to change that. You might have to drive quite a distance to find much of a change so you end up stuck with the situation. That may or may not give you the best shots, but it certainly does restrict you.

With close-ups, your photo limitations are often totally up to you. You can move around your subject, adjusting your relationship to the subject and its background. You can shoot regardless if you have sun, shade, or clouds. If you don't like the harsh sunlight, for example, no big deal. You can change your angle to the sun and quickly run through everything from front light to sidelight to backlight (which is exactly what I did for [Figure 1.4](#)), or you can create a shadow over your subject by throwing a jacket over a nearby tree or having someone stand to block the sun.



ISO 200 • 1/800 sec. • f/5.6 • 60mm lens (MFT)

Figure 1.4 A lively close-up of cream puff flowers in Southern California shot midday.

Or maybe the day is cloudy and gray with little to help define the

landscape. You might like the big landscape, but the camera simply does not like the light on it and gives you a dull, gray image. Up close, though, you are free to discover new possibilities that might work well just because the light is not so harsh (**Figure 1.5**).



ISO 200 • 1/800 sec. • f/2.8 • 35mm lens (MFT)

Figure 1.5 This set of paintbrush flowers in Great Basin National Park gets a whole different feeling when shot on a cloudy day that made the mountains look dull.

That said, there are limitations for this work that certain subjects present. You'll learn more about this later in the book, but keep in mind that some flowers only bloom at certain times of the day, some insects are only active during midday, while other insects are only active at night. And obviously, special aspects of close work such as dew only appear at very specific times of day.

But that doesn't mean that there aren't other subjects that you can just as easily find and photograph when you get down and dirty with the close-up world. This relates to something I love to talk about: a choice photographers don't always think about, the choice between "Yes" and "No." Here's what happens: The photographer goes through many choices, from subject to lens focal length to shutter speed to f-stop and more. But he or she often forgets that "No" is an important option when the conditions aren't right, when the camera is not cooperating with a subject, or you feel you are forced to the "No" because a flower is not blooming. When you say no to a shot, that can free you to find a

photograph you can say “Yes!” to. Close-up options offer you a lot of chances to say “Yes!” to a photograph when you have to say “No” to a shot that doesn’t work.

To Dew or Not to Dew

While I love the look of dew on things like spider webs and flowers in early morning light, I am not a big fan of taking a spray bottle of water out into the field to make your own “dew.” I know a photographer who loves to take a big bottle with a pump spray nozzle to add dew to all of his shots. I don’t like this because it never looks right – the light is not right for the water droplets at any time except early in the day. In addition, for me, that disrespects the authenticity of nature, and can encourage one to try to force a picture of something by making it look “nice” with “dew” when there are other photographs around if you are open to them and don’t try to force the shot.

Sometimes You Just Gotta Get the Close-Up

My love for nature started very early. When I was in grade school, my family lived in a new development outside of Philadelphia that bordered farmlands and a small creek. My friends and I used to ride our bikes out into these areas and explore. We found all sorts of things, from pheasant eggs to a dead skunk, which for some reason I decided needed to be buried. That turned out to be okay because I later had a need for something for show and tell at school, so I went back to the gravesite and dug up the bones!

When we later moved to St. Paul, Minnesota, we lived in an older house in the city. It was a nice location, but there was less that I could get to on my bike. As a teen, I started to explore the many things that lived in our garden. I had appropriated an old camera from my dad to use with my growing interest in photography. Unfortunately, it did not allow me to focus up close. It was a rangefinder camera, which meant that it wasn’t really useful for close-ups either. I had no other options, though, because I could not afford to buy one of those fancy DSLR cameras I was reading about in the camera magazines.

I found so many things going on in the garden, from flowers to insects, and I did the best I could with the gear I had. But I wanted so much to get in close and capture images of the little things that I was discovering.

I thought a bit about it and considered how a magnifying glass would

help a person see things up close. Maybe that would work with a camera? I did some research at the library (this was way before the Internet) and found out that I could use a magnifying glass in front of a camera lens to allow close focusing. How cool!

I made a mount out of cardboard that fit around the lens then attached a magnifying glass to that mount. That was great, but I had no way of focusing since I couldn't see through the lens. Then I read something about underwater photographers using a frame to help position the camera for close-ups. I figured out the focal length of the magnifying glass, then I took a piece of wood that I could mount to the camera and that would end at the focus point for lens and magnifying glass. After doing a little experimenting, I found that it worked ([Figure 1.6](#)).



ISO 400 • 50mm lens with magnifying glass (35mm film)

Figure 1.6 One of my first close-ups, shot with my dad's old camera and a magnifying glass over the lens.

This didn't necessarily give me the sharpest pictures in the world. A magnifying glass is not designed for such work. But it sure was a lot better than only being able to photograph from afar. I got started doing close-up work without a macro lens! I think this is one reason I learned how important focal lengths can be to close-up work that goes beyond use of a macro lens. That's why you will find some chapters in this book about using focal lengths from wide-angle to telephoto for

close-up photography. Having only a macro lens can be very limiting.

Close-Up and Macro Defined

Whether you know the technical difference between close-up and macro or not is probably not going to affect your photography much. But because there is a technical difference and it might come up, it is worth taking a moment to look at where the word macro comes from and what the actual difference is.

All macro shots are close-up images, but not all close-up images are macros. Originally, macro referred to images that were shot close to 1:1. What 1:1 means is that the subject in the real world is the same size as it is on your sensor or film. Obviously, then, when you enlarge that image on your screen or project it, it will be much bigger than the actual size of the subject. So technically, macro means shooting at 1:1 or close to it ([Figure 1.7](#)). That is pretty darn close and goes beyond what most people are interested in for close-up work.



ISO 200 • 1/200 sec. • f/11 • 60mm lens (MFT)

Figure 1.7 This green lynx spider sitting on a monkeyflower blossom was about the same size in real life as when captured on the sensor, so this is close to 1:1.

For most photographers, macro is simply a synonym for close-up. That's fine, and if that works for you, go for it. The important thing is not that you are absolutely technically correct on the terms, unless

you are in some disagreement with an obstinate camera club member, but that you are getting in close and enjoying the experience.

Close-up photography is basically any photography that allows you to get in close enough to your subject to see details that people don't normally see. With moderate focal lengths, this typically means you are closer than 2 feet from your subject. With a telephoto lens, this might mean you can be as far away as 5 to 6 feet. With a wide-angle lens, you have to get closer for close-up work, so this might mean you are less than a foot away.

The term macro on a lens goes a little deeper. It does refer to how close you can focus without accessories, i.e., 1:1 or at least 1:2. It is also supposed to signify that the lens is corrected for flat field sharpness up close. That is not necessarily a big deal for nature photography, because you are rarely photographing anything that is flat. However, a true macro lens is designed to give its best sharpness from edge to edge even when the subject is flat, such as when you are shooting artwork or something like that. Most lenses have a slight curve to their plane of focus, which is not an issue when you are photographing at a distance, but could be up close. We'll look more deeply at macro lenses in the next chapter.

Close-Ups Have Impact

However you describe this type of photography, close-up and macro images always have impact. This is one area where even the beginner can get some striking and unusual pictures that might not be as easily accomplished with bigger scenes. The reason for this is that most photographers don't shoot up close, so automatically, you get something they don't.

You may be old enough to remember the unsuccessful disc film camera that Kodak came out with in 1982. Kodak introduced it with a lot of fanfare, but the image quality was never that great and the cameras were always a bit awkward to use, so this product never did well in sales.

Kodak did a lot of research about how photographers took pictures before introducing this camera, probably over-researching and overthinking things, since the camera was not very successful. But they did find out one very interesting thing, which related to the distances that people photographed from. They discovered that most people photograph at around 5 to 7 feet or infinity, largely because they were photographing people and landscapes. In addition photographers rarely photographed closer than at 2 feet. The disc cameras had limited focusing ability because of that.

Most cameras today, including Smartphone cameras, will allow you to focus quite close, and so close-up work is much more common today. But most people use it to simply record things they want to remember or share on Facebook, so you see a lot of pictures of babies, flowers, and half-eaten meals.

Frankly, photographers have traditionally not gotten close to their subjects, which is exactly what Kodak found out. In the past, lenses for SLR (single-lens reflex) film cameras often didn't focus very close on their own. Camera owners got used to that, plus people still like photographing things from a medium or long distance, i.e., a medium distance for people photos and a long distance for distant vistas, from landscapes to cityscapes.

Also there's no question that when you get really close to a subject, it changes your experience with the world. Not all photographers are comfortable with being super close to things like little critters. (That said, starting in the next chapter, you'll learn that you don't always have to get right on top of your subject in order to get a close-up of it.)

This means that any close-up work that you do, photography that you spend any thought on, is going to be something unique in the world (**Figure 1.8**). You then get a chance to show off your photography and get people to pay attention!



ISO 200 • 1/500 sec. • f/5.6 • 200mm lens (MFT)

Figure 1.8 Bristlecone pines include some of the oldest trees in

the world, some which reach thousands of years old. They have to start somewhere with new cones and new needles.

Small Cautions

Close-up photography, by definition, means that you are getting close to your subjects. While most of nature is pretty benign, I do want you to be safe and get out and photograph without fear. What about things that might bite, sting, or cause you problems?

As I have said, I have been photographing up close since I was a kid. I have never been stung while photographing any insect, and the only critters that have gone after me have been deer flies and horse flies, mosquitoes, and ticks. Most of the time you will not have problems with danger when you are doing close-up photography in places like the foggy meadow next to a pond in [Figure 1.9](#).



ISO 200 • 1/50 sec. • f/8 • 12mm lens (MFT)

Figure 1.9 A foggy morning with lots of dew-covered spiderwebs! This is a place for exciting close-up work. There is little here that can be dangerous to you.

When You Need to Be Careful

Obviously, if you are allergic to bee stings, you don't want to get close to any bees, especially honeybees. But just so you know, native bees rarely sting, and in fact, usually only the females can sting anyway

(using that only for defense around their nests). Very few stinging insects will bother you when they are busy gathering pollen and sipping nectar from flowers. They're just too busy to care.

Definitely be careful around a wasp nest. Also, yellow jackets build nests in the ground and can be a problem. While I have never been stung by them while in the field photographing, I have inadvertently walked across a nest of yellow jackets and experienced their wrath.

Ants are relatives of wasps and can both sting and bite. More than once I have knelt down to get close to an interesting flower, for example, only to discover I was kneeling next to an ant hole. Big ant colonies are generally pretty obvious and you can avoid them easily.

To my knowledge, I have never been bitten by a spider. Most spiders can't bite people because they don't have the strength and/or fang length to penetrate skin. Spiders are small, soft-bodied creatures that are easily squashed, or at a minimum, hurt. That means that at any sign of danger, most spiders will take off and hide.

When medical investigators check on "spider bites," the bites are rarely from spiders. A spider bite will always have two small holes right next to each other because of their two fangs (most doctors do not know that). That is not to say that spiders don't bite, but that they bite rarely.

There are a couple of spiders in the United States that can cause more serious bites. The black widow spider is fairly common from California to the Southeast and its bite can be very painful. It can cause physical problems to the whole body that necessitate going to the hospital. The brown recluse spider is found in the Southwest and has some very strong venom, but it rarely bites because it is indeed a recluse and doesn't come out in the open much.

You're rarely going to see things like scorpions or other seriously stinging critters, and if you do, you'll know what they are.

Black Widow Spiders

Black widow spiders scare a lot of people, but they are typically very shy and not really interested in biting people. Black widow spider bites tend to happen more when people are rooting around in debris in the garden and grab one inadvertently. Black widow spiders come out at night on their webs—which are built low, irregular, and tangled—and tend to scurry back to a hiding place whenever danger threatens. One interesting bit of trivia is that black widow spider bites used to be much more common when outhouses were

people's only toilets. They would build nests under the seat opening to catch flies that were attracted to the outhouse. Unfortunately, people would sit down and...well you can guess what happened.

As far as plants go, you definitely need to be aware of poison ivy and poison oak ([Figure 1.10](#)). I am very sensitive to these plants and am hyper aware of where they are. Over the years I have gotten both from times I was out photographing. A problem with these plants is that if you are sensitive like I am and your tripod or shoe gets into their leaves, the oil can remain on your tripod or shoe only to cause you problems later. Know how to identify these plants and take along some wipes to clean off shoes, tripod, skin, and so forth if you think you have come in contact with them.



ISO 200 • 1/250 sec. • f/8 • 180mm lens (APS-C)

Figure 1.10 A close-up of the leaves of poison oak. Leaflets come in groups of three (never more).

There are a lot of plants that have spines, and you do have to be careful of such plants. I have knelt down on prickly branches and regretted that. But usually if you just are aware of your surroundings, you can avoid them. A big problem happens to be the cholla cactus, common to many desert areas in the Southwest. Cholla cactus spines are very, very sharp and have barbs on them so that if you kneel onto or brush into a stem, you can run into big problems.

Chapter 1 Assignments

Discover your camera's capabilities

A great exercise is to set your camera and/or lens on manual focus, and then set the lens to its closest focusing distance possible. Now, without changing that focusing point, go out and take 20 or more pictures by just moving in until your subject is sharp. You will quickly discover a whole new world with your camera that you might not have known was possible. I have found that many photographers don't really appreciate what they can do with their lens set at its closest focusing distance.

What's in your backyard?

Go out into your yard with your camera, find an interesting spot with flowers, leaves, rocks, tree bark—anything that you think could look good up close. Pull up a lawn chair and just sit down and look. As you, sit, you will discover more and more interesting things. Set your camera on its closest focusing distance and move in for the shot.

Discover what poison ivy looks like

I know, this is not a photographic assignment, but it's an important one if you're going to spend any time getting close to things in the wild. Google "poison ivy" if you are on the East Coast and try "poison oak" if you are on the West Coast. Learn where they grow and what they look like. Poison ivy and poison oak are common through large parts of the United States. They can cause a serious reaction of welts, swelling, and severe itching if you are sensitive to the plants' oils at all. If you haven't had poison ivy or poison oak problems, don't assume that you never will. Our sensitivities to these plants can change over time.

Try a big scene with close-up

If you like photographing big landscapes, keep doing that! But when you get out to a location with a landscape, start looking around for close details as well. Enrich your photography and experience at the location by photographing up close, too. This is just the mindset to help you broaden your approach to photographing at any location. This will allow you to get more from wherever you are and enjoy your photography even more!

Where do you feel limited?

This is a thought exercise. One thing that can really help you as a photographer of close-ups is to start thinking about where you feel limited when you are out photographing. What is it that you wish you could photograph? Is there gear that is keeping you from getting the close-up views that you really would like? The next chapter and other chapters will help you refine your approach to close-up photography, but this exercise will assist you in getting started.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

2. How to Get Close



ISO 400 • 1/800 sec. • f/5.6 • 16-80mm lens (APS-C)

The macro lens and beyond

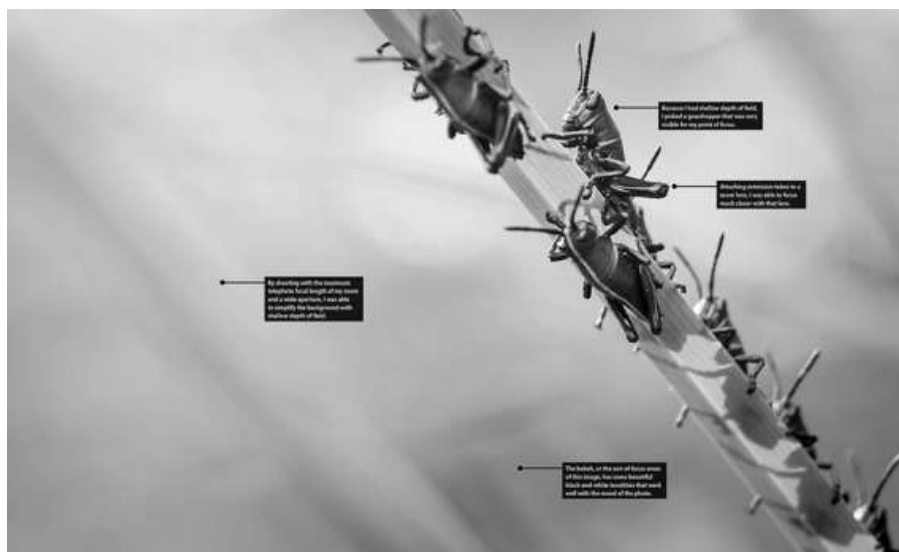
While a macro lens can be a great resource and tool for photographing up close, that's not the only way. You'll learn other important ways of getting close in this chapter, even to true macro 1:1, without ever owning a macro lens. This can be great to know if you're just starting out and can't afford a new lens. In addition, you will discover that if

you only have a macro lens for close-up work, you are going to be limiting yourself as a photographer who wants better images for your close-up and macro work.

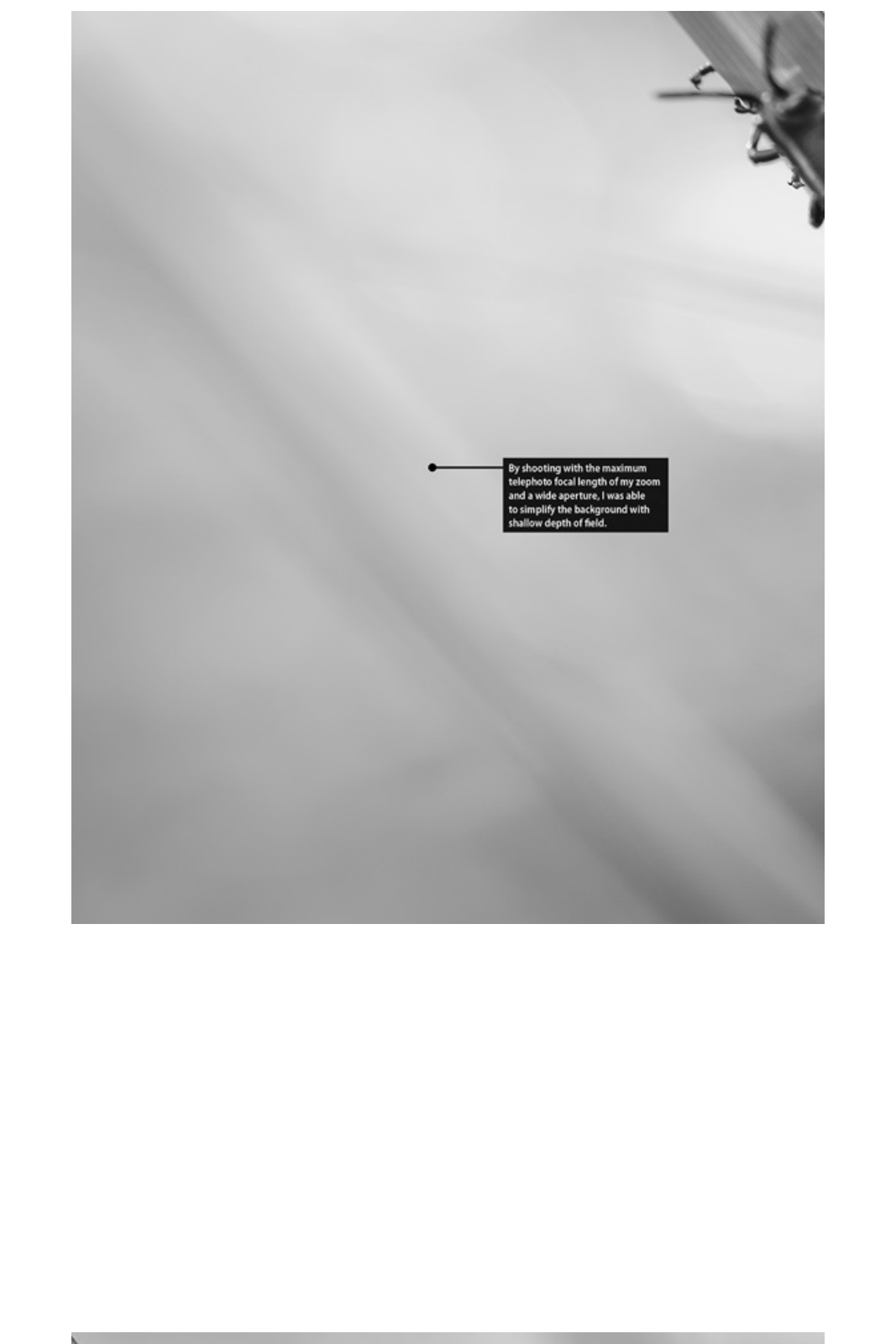
I'm going to give you a number of ideas on how you can get up close with your photography, all of which work and can help you get better pictures. I am a big believer in multiple ways of getting up close so that I'm not limited to only using a macro lens. A macro lens is important to my work, but it is not the only way for me to get effective macro shots.

Poring Over the Picture

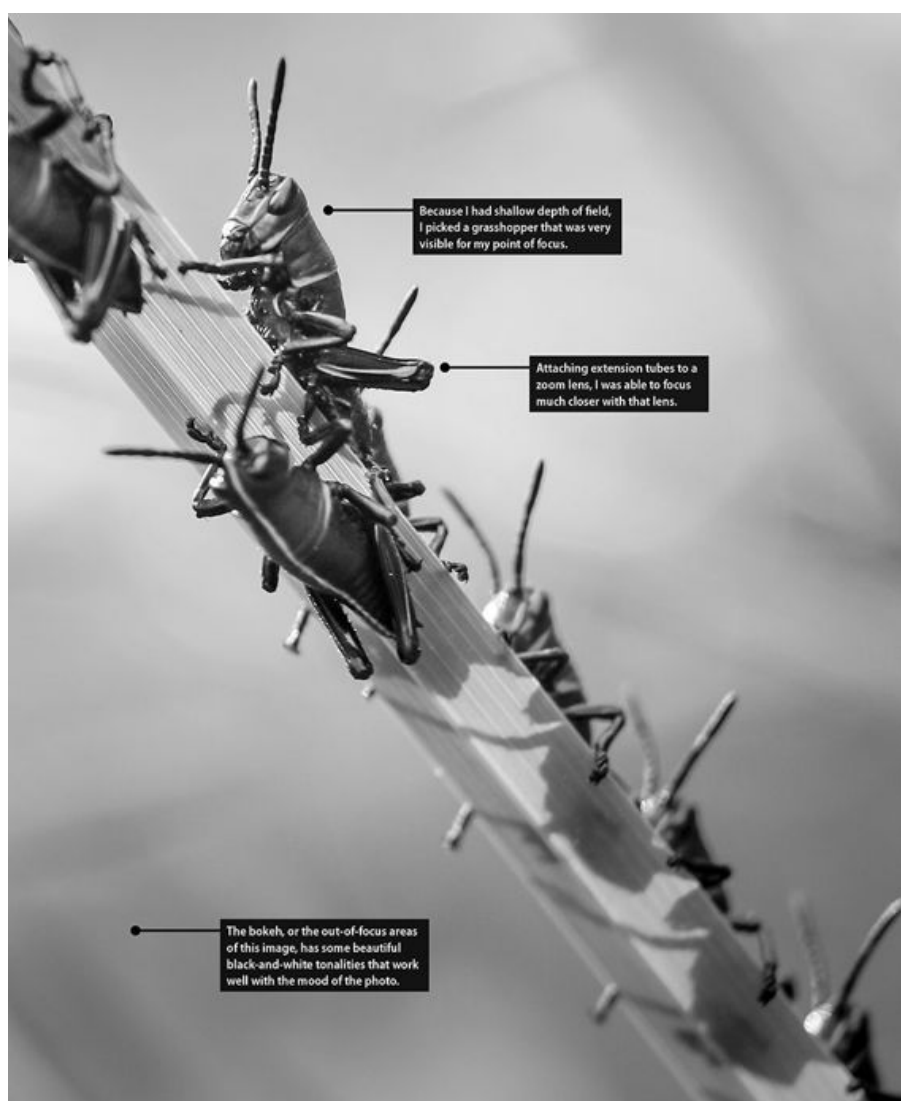
Lubber grasshoppers live in Southern Florida. They are black and red when immature as small nymphs, and change to a brownish color when they are adults. I find them fascinating, especially when they are all lined up on a blade of grass in the Everglades. The light is low from a sun approaching the horizon, which also affects the shadows seen on the grass. I really liked the black-and-white version of this photo because it gave such a graphic design of tonalities that contrasted nicely with the dark grasshopper nymphs.



ISO 100 • 1/25 sec. • f/5.6 • 16-80mm lens (APS-C)

A black and white photograph showing a person climbing a rope. The person is in the upper right corner, and the rope runs diagonally across the frame. The background is a soft, out-of-focus gradient of light and dark tones, creating a shallow depth of field. A text box with a line pointing to the background is located in the center-right of the image.

By shooting with the maximum telephoto focal length of my zoom and a wide aperture, I was able to simplify the background with shallow depth of field.



Because I had shallow depth of field, I picked a grasshopper that was very visible for my point of focus.

Attaching extension tubes to a zoom lens, I was able to focus much closer with that lens.

The bokeh, or the out-of-focus areas of this image, has some beautiful black-and-white tonalities that work well with the mood of the photo.

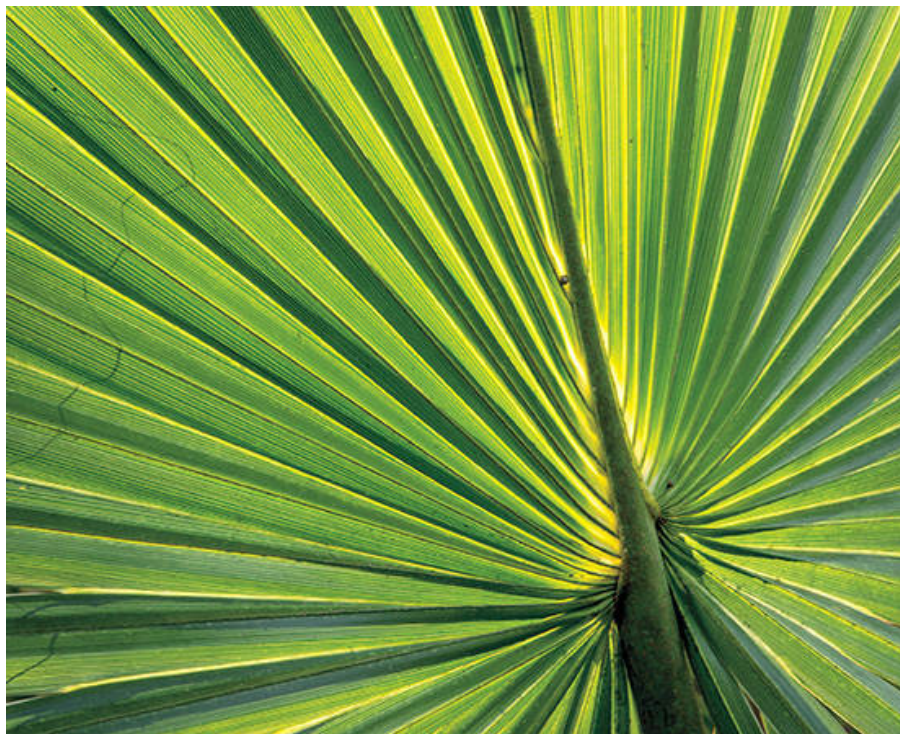
Close-Up Gear

Years ago, getting close was not always easy. If you had a camera that did not have interchangeable lenses, you could forget close-ups. And even if you owned an SLR camera, most lenses did not focus very close without help. This meant that no matter what you did, you had to buy additional gear.

That's one reason photographers like me who have photographed up close for many years typically have a range of possibilities for close-up gear. Truthfully, one reason I got to learn so much about different types of gear for quality close-up images was that when I owned my first SLR, I could not afford a macro lens. I had to explore other gear,

including extension tubes, in order to do the close photography that I really wanted to do.

Today, you have so many options for all sorts of gear. You may be able to do close-up work with your existing gear ([Figure 2.1](#)) or with a relatively low-priced investment in some accessories for your existing lenses. Or maybe that macro lens is the right choice for you. This chapter will help you make these choices, including making the choice for a macro lens that best suits your needs.



ISO 100 • 1/3 sec. • f/11 • 16-80mm lens (APS-C)

Figure 2.1 A saw palmetto leaf lights up from a low backlight, and getting in close emphasizes its pattern and design.

Using the Gear You Have

With modern digital cameras and lenses, you can get close immediately with most lenses. Photographers who never shot back in the days of film photography often have no idea that tools for close focusing were rarely part of the gear. I can remember shooting with a Nikon telephoto lens that could only focus to 10 feet away!

The problem is that the “pros” and “long-time experts” who “grew up” with lenses that did not focus close is that this can influence the information a lot of photographers get from them. It is not unusual,

for example, that an older and well-meaning photographer will inadvertently give outdated information about close-up work because the past had such an impact on them. They have never tried to photograph in any other way for close work.

Yet, today, almost all cameras and lenses focus very close indeed. This can be quite remarkable. I have picked up point-and-shoot cameras that focused down to a couple of inches. Many, many camera lenses today will focus down into the close-up range without any accessories at all. Today, when I buy new lenses, I specifically look for lenses that have close focusing abilities.

Before you start thinking about buying any new gear, including lenses and close-up accessories, check out how close your present gear will focus. In the last chapter, I gave an exercise that encourages you to get an idea of what your lenses can really do with close-up capabilities. Simply put your lens on manual focus, then set your lens to its closest focusing distance, and finally, without doing any focusing at the lens, move in to a subject until it is sharp ([Figure 2.2](#)).



ISO 100 • 1/250 sec. • f/11 • 18-55mm lens (APS-C)

Figure 2.2 To photograph this detail of petrified wood in Petrified Forest National Park I used the kit lens that came with the camera.

One thing that you may discover is that your gear does its best close focusing at wider-angle focal lengths. That's a good thing to know. If you have a lens that does have telephoto capabilities, and it allows you to focus close, that's a great bonus ([Figure 2.3](#)). You may discover that you can get a lot of interesting close-up work done with

that lens.



Figure 2.3 This wide-range zoom lens focuses to 1.64 feet without any accessories.

A Note About Formats

I find there is a lot of misinformation about digital formats in cameras. There are three main formats commonly used today: 35mm-full-frame, APS-C, and Micro Four Thirds. It is important to understand a little about them because they affect the cameras used, the focal lengths chosen, and the portability of your gear.

35mm-full-frame: Technically this really should be called 35mm-full-frame because full-frame without any qualifier is meaningless. The size in this case means that the digital sensor is the full size of 35mm film. This is the largest of the formats and focal lengths act on it the same as they did with 35mm film.

APS-C: APS-C is the next size smaller. It is sometimes called a crop format, which is technically inaccurate unless it was called a 35mm crop format. All formats are “cropped” compared to a larger format, including 35mm-full-frame. This format uses less of the area of a 35mm-full-format sensor so that it has a magnification factor of 1.5-1.6x.

Micro Four Thirds: Micro Four Thirds (MFT) is the same as the older Four Thirds format in terms of sensor size, but it uses a different lens mount and is designed for mirrorless cameras. It is the smallest of this group of sensors and has a magnification factor of 2.0x compared to lenses used for 35mm-full-format sensors.

These are all simply different formats. In today's world of quality digital sensors, you will find very little difference in image quality if you look at comparable lenses and cameras. There are some differences that these formats create, however, all related to relative format size. The larger the sensor size, the larger the lens is needed, even if it were the same focal length. That means larger and heavier lenses, which is especially magnified when you consider that you can use a shorter and smaller focal length lens with a smaller format to get the same subject size on your sensor.

Because larger formats need a longer focal length for any given angle of view, this means that you have less depth of field for any given angle of view. Since smaller formats use a shorter focal length for any given angle of view, this results in more depth of field for that angle of view. These are not arbitrarily either good or bad. Sometimes having less depth of field is better than having more depth of field, and sometimes the reverse is true.

Typically, larger formats of the same generation of sensors will have very high ISO capabilities and less noise at high ISOs.

Achromatic Close-Up Lenses

You can get close with inexpensive close-up lenses, also called close-up filters, but the problem with these lenses is that they aren't very sharp. Actually, that's probably giving them a bit of a compliment. Their only value is that you can get them cheap and that they do make getting close up simple because you just screw the lenses on to the front of your existing lens.

There is an alternative: the achromatic close-up lens. This is an easy-to-use option, like the cheap close-up filters, because you just screw it onto the front of your lens and that causes your lens to be able to

focus closer. The difference, however, is that the achromatic close-up lens is a highly corrected optic that can give you very sharp images. Standard close-up lenses are single-element, one-piece lenses that are similar to a magnifying glass. An achromatic lens is a two-element lens that uses the extra glass element to give you a much better image ([Figure 2.4](#)).



Figure 2.4 Two achromatic close-up lenses of different sizes and different manufacturers. The one on the right has a filter ring adapter to allow it to be used on different camera lenses.

Depending on the size that you need, one of these close-up lenses can range from about \$60 or \$70 all the way up to \$200. You buy such a lens to fit the filter ring of the camera lens. Since different lenses can have different filter ring sizes, you buy an achromatic close-up lens to fit the largest lens you own, then buy filter adapter rings to match it to all of your other camera lenses. Canon, Hoya, and Century Optics all make excellent achromatic close-up lenses, and they can be fit to any lens (made by any manufacturer) with the right filter size or adapter.

One thing that I really like about achromatic close-up lenses is how well they work with wide-angle zooms ([Figure 2.5](#)). It can be difficult to get really wide-angle focal lengths to focus up closer, and these lenses help you do that. You do have to be careful that your achromatic close-up lens is sized so that it does not cut off the corners of your shot with your widest focal length. They also do some great things with telephoto focal lengths to allow those lenses to focus super close on your subject.



Figure 2.5 The achromatic close-up lens simply screws on to the front of the lens. This is one with a large diameter to allow for use on a wide-angle zoom.

These close-up lenses are very, very good, but they were obviously never designed into the optics of any particular camera lens. The quality of your camera lens will influence the quality you get when shooting close-ups with an achromatic close-up lens. That said, I have found that these lenses work extremely well with almost all modern camera lenses.

Since the lenses screw onto a lens, there can be no metadata with the image file to tell you that you used one ([Figure 2.6](#)). And, you can't tell the difference from image quality; they really can be that good.



ISO 100 • 1/160 sec. • f/14 • 18-55mm (APS-C)

Figure 2.6 The rock nettle flowers seen here were photographed in Death Valley with a wide-angle focal length and an achromatic close-up lens.

Extension Tubes

Extension tubes are exactly that, tubes. There are no lenses or optics involved. As you can see in [Figure 2.7](#), you can stick your finger right through the opening in the middle of the tube. These tubes fit between your camera body and lens. This creates a space between your lens and sensor that pushes your lens away from the camera. As the lens moves away from the camera body, it can focus closer.



Figure 2.7 Extension tubes are empty tubes that create space between your lens and the camera body.

All lenses change in their ability to focus up close as they move away from the sensor. How close you can get with a particular extension tube depends on the relationship of the size of that tube to the focal length of your lens. Wide-angle lenses have shorter focal lengths so shorter extension tubes will get them extremely close to your subject. Telephoto lenses have longer focal lengths so you have to use more spacing, i.e., a larger extension tube or a combination of extension tubes in order to get those lenses to focus as close.

Extension tubes often come in sets of two or three. These can be used singly, using the appropriate size for what you want to get out of a particular lens. You'll start to learn what that means as you use the different extension tubes with your lenses ([Figure 2.8](#)). I can't give any specifics because how close you can focus is always dependent on that changing relationship of the size of the extension tube to the focal length of the lens.



Figure 2.8 Extension tubes fit between the lens and camera body and move the lens away from the sensor.

This does create two interesting challenges that can be a little confusing for the photographer first using extension tubes. First, you may find that you can't use a particular extension tube on a wide-angle lens at all. The size of the tube may simply put too much distance between camera and lens compared to the actual short focal length of the lens. The lens gets pushed so far away from the sensor that the focus point can even move inside the lens, making the combination unusable.

The second challenge is that zoom lenses no longer act like the zoom lenses you expect them to be from your experience with them at standard distances. This again is related to the relationship of the size of the extension tube to the focal length. For example, consider a 50–200mm zoom lens. A 20mm extension tube is almost 1/2 of the 50mm setting, but is only 1/10 of the 200mm setting. Such an extension tube will make that 50mm focal length focus extremely close, yet the 200mm focal length is not going to be anywhere near that close. The result is that as you zoom, your focus will change. That's normal. You have to refocus your zoom lens as you change your focal length because you are changing the relationship of the extension tube to that focal length.

There is no way to predict how a given lens is going to do up close with extension tubes. They are such a useful accessory to have that I

think it is worth getting them and then just trying them on your different lenses. You may discover some lenses work better than others up close, but you'll discover all of them can now focus closer, including giving your zooms a macro zoom capability. Image quality will often be quite excellent with your lenses, especially if you stop them down from the maximum aperture.

Buy what are called automatic extension tubes. These are extension tubes that connect the electronics of a lens to the camera body. The f-stops of many lenses cannot be set on the lens and have to be set on the camera body. Without this connection, you will not be able set f-stops. This connection also allows a lens to autofocus, though as you will discover in the next chapter, autofocus isn't always the best option when photographing up close.

You may find very inexpensive extension tubes that are essentially only tubes. They have no electronic connection between camera and lens. They are designed for old-style manual focus lenses that have their f-stop settings on the lens. While they will allow you to focus close, you won't have any control over your lens.

While automatic extension tubes do allow the lens to communicate with the camera, they add no metadata with the image file to tell you that you used one. Like with achromatic close-up lenses, described in the last section, here it's hard to say for sure which photos used this close-up attachment and which ones did not. One way I can often tell is that a lens is focusing a heckuva lot closer than normal ([Figure 2.9](#)). You really can't tell the difference from image quality; extension tubes really can help a lens work that well up close.



ISO 400 • 1/500 sec. • f/14 • 200mm (MFT)

Figure 2.9 Extension tubes were used here with a 200mm lens to give a perspective and depth of field unique to a telephoto lens.

Other Options

As you explore close-up and macro work, you will discover some additional options for getting close. All of these work, but they aren't for everyone.

Tele-Converters

Tele-converters (also called tele-extenders) are an excellent way to increase the magnification of your lenses with a small accessory lens that fits in between your camera body and lens ([Figure 2.10](#)). They are different from extension tubes because they have optics built into them that typically come in 1.4x and 2.0x strengths. That means that if you have a 100mm lens, for example, your lens will now be 140mm.



Figure 2.10 Tele-converters fit between camera and lens and have optics inside them to change the lens's effective focal length.

This also changes how the f-stops work. A 1.4x tele-converter reduces the f-stop by one full stop, and a 2.0x converter by two stops. If that 100mm lens was f/2.8 at its maximum aperture, it now gets smaller, to f/4 and f/5.6, respectively. There is also somewhat of a loss in image quality because you are magnifying not only what the lens is seeing but also any defects it might have. How much image quality it loses is totally dependent on a particular lens and converter combination. Sometimes it is negligible and not worth worrying about, but sometimes it is significant.

A tele-converter does not make your lens focus any closer. However, it magnifies what the lens is seeing so it gets a closer view at the same distance. Even though you might be only able to get as close as 5 feet to your subject, for example, you now have a magnified view of that subject from that distance which gives you a closer view of the subject.

Bellows

You don't see bellows used much anymore for close-up work, but they can be of value for certain types of specialized macro and magnification work. Bellows act like extension tubes in that they increase the distance between camera and lens. This distance can be changed a lot because the bellows open and close on a track, to be moved at any distance needed within its capability.

Bellows are great if you need extreme close-up and magnification work. Their structure requires them to have a significant distance between camera and lens just to start, so they really aren't as useful for modern close-up work. In addition, there is a challenge to connecting the lens and camera body so that they can communicate. This means that most bellows act like manual extension tubes or require very specialized gear to make them work automatically.

Bellows are a bit awkward to use and not very convenient for fieldwork. Some photographers have mounted an old manual macro lens on them for extreme close-up work, which works almost like using a microscope.

Reverse Adapters

A unique way of getting close-ups is to attach a regular lens backward on the front of the lens that is attached to your camera. You screw something called a reverse adapter into the filter ring of the lens on your camera and then screw on another lens with its filter ring to the other side of that reverse adapter.

This makes the front lens act like a highly corrected close-up lens. This will allow extreme close-up focusing in the macro and magnification range. I have not done much with this type of close-up method because it is a bit unwieldy to work with, but I have seen some amazing images of magnified objects, such as snowflakes, done with it. If you are interested in exploring this further, Google reverse adapters and macro photography.

My Gear

Today I shoot with Micro Four Thirds camera and lenses and I love this equipment. My gear is made by a combination of manufacturers because both Panasonic and Olympus make Micro Four Thirds cameras and lenses. But the story of my gear goes back a few years as far as close-up photography is concerned.

When digital first started, I was working as editor of *Outdoor Photographer* magazine. I got the chance to try out all sorts of gear

from every manufacturer, but I could not afford to buy a DSLR at first. So I started out with a Canon PowerShot G2.

Tilting Live View

The G2 was an excellent little camera. Not a point-and-shoot as some people called it, but a compact digital camera that had every bit the capabilities of a DSLR but it did not have interchangeable lenses. I loved two things, the tilting “live view” LCD (this was way before the true DSLR Live View, but technically, it was live view because it was showing what was coming from the sensor), plus its built-in close-focusing capabilities.

Unfortunately, the camera focused up close only in its widest-angle focal length. I wanted to have the capabilities of shooting with the telephoto focal lengths as well. This particular camera had an adapter that allowed you to add a filter, so I found an achromatic close-up lens that I could attach in front of the lens. This worked great!

Since you could not use the optical viewfinder for close work, you had to use the LCD, and I really got to know the potential of using a tilting LCD for close-up work ([Figure 2.11](#)). I loved it.



ISO 100 • 1/125 sec. • f/2.5 • 21mm (telephoto focal length for very small sensor cameras)

Figure 2.11 This grasshopper was shot in Springfield, Missouri, with a Canon PowerShot G2 and a Century Optics achromatic close-up lens.

DSLR Live View

When DSLR prices came down, I definitely wanted a camera with interchangeable lenses so I bought a Canon Digital Rebel (APS-C). I

could afford that, plus I had Canon lenses from my film gear. It acted like a film camera, which was okay, but I missed the tilting “live view” LCD.

Then Olympus came out with the first DSLR with a tilting Live View LCD. This was perfect for me. Although they ran the Live View off of a second sensor, it showed pretty much what the camera sensor saw through the lens and now I had the tilting Live View. I totally abandoned my Canon gear and invested in this new Olympus digital camera system. I loved everything about it, so I stayed within the system and got an Olympus E-3 (Four Thirds). This had an even better, true Live View with a swivel LCD. This made getting down and dirty with close-ups a lot easier than I had ever experienced before ([Figure 2.12](#)).



ISO 100 • 1/180 sec. • f/9.5 • 14mm (Four Thirds)

Figure 2.12 Cholla cactus in Joshua Tree National Park. By using the Live View on my new Olympus, I did not have to put my head so close to these spines.

Change to Video

I had shot video professionally in the 1980s and 1990s, so when Canon came out with high quality HD video in their DSLRs, I went back to Canon. In the days of standard video, I never liked shooting nature because the image quality was never that great. With HD

video, this all changed.

So I got a Canon EOS 7D. It was a great little camera, but I missed the tilting LCD. Then Canon came out with the 60D. This camera had the same sensor and internal processing as the 7D, but it had that tilting LCD! I bought it and quit using the 7D even though the build quality of the 7D was “better.”

Tired of Big Gear

Then I went to Costa Rica to do a workshop and photograph in the amazing rainforest there ([Figure 2.13](#)). I had all of my Canon APS-C gear on my back much of the time. I just got tired of dealing with it, including dealing with it going through the airport and flying. I can’t even imagine having to haul around the weight and size of 35-full-frame equipment through the jungle.



ISO 400 • 1/40 sec. • f/8 • 180mm (APS-C)

Figure 2.13 Costa Rica was fun, but the gear weighed too much! This is a blue-jeans poison arrow frog.

At the time, mirrorless cameras were gaining traction on the market. Because these cameras have no mirror in them, the camera bodies can be made smaller and less expensive, plus lenses can be designed specifically for them that are also smaller and less expensive but provide equal quality.

I decided to try out the Sony NEX system APS-C format mirrorless gear. I was able to get a camera with a sensor very similar to my Canon gear plus lenses, and it all fit into a smaller, far more

lightweight backpack. The cameras had tilting LCDs, too. While I felt the image quality was okay, I was not completely happy with the way the Sonys handled, especially the way the controls were set up and were so dependent on the LCD. I also felt limited by the range of lenses and accessories available for the system.

On to My Present Gear

Because of my experience as an editor of a major photographic publication, I had the opportunity to try out a Panasonic Lumix GH3 with a couple of its latest and most modern lenses. I fell in love with this camera. It felt good in my hands, not unbalanced like the Sony cameras always did. The controls were accessible and easy to use, plus there was an outstanding selection of lenses available. This is a mirrorless Micro Four Thirds (MFT) camera ([Figure 2.14](#)).



Figure 2.14 My GH3 in action, down low and up close on a beanbag. This really shows the value of the swivel LCD.

Why I Have to Have a Tilting LCD

I have always loved getting down low and right in there with my subjects. Back in the days of film, I would lie prone on the ground with my head smashed against the dirt in order to get a particularly low angle of flowers with a wide-angle lens used up close. I tried some right-angle viewfinders and never liked them.

They were a pain to use. I could not afford cameras that had interchangeable viewing systems that included a waist level finder.

So when tilting LCDs became available, I fell in love with them immediately. They enabled me to put my camera into places where it was difficult to do otherwise. I could put the camera right down on the ground and even tilt up and put low flowers against the sun. I could get in closer to a lot of subjects where I might not be able to put my whole head into the space. That sometimes is important with close-up work.

Another thing that came in handy was to be able to stretch my arm out toward a subject, getting the camera close to it without getting my whole body next to a skittish or wary critter. Finally, I could set up my tripod at any height beyond simply at eye level and not be uncomfortable looking through the viewfinder. Waist level, no problem! Higher than my head, no problem! This has become so much a part of my workflow in shooting in the field that I really cannot work without a tilting or swivel LCD.

A lot of people comment about how hard it can be to see your LCD in bright light. While that is true, it is a lot less true today than it used to be. The newest cameras have very bright LCDs that are usable even in bright light. Sure, they aren't quite as usable as when the light is less bright, but they are usable. I also always wear a hat and use my hat at times to shield the LCD when the light is giving me a problem.

The cool thing about cameras in the MFT system is that you can use lenses and accessories from both Panasonic (which includes some Leica-designed lenses) and Olympus. You can even get adapters to put almost any camera lens on the body. This gave me a wonderful range of lenses to choose from. And since this was a mirrorless MFT, all of the gear was extremely small and lightweight. I no longer struggled with a heavy pack on my back when I was out shooting.

The GH3 had a high-resolution, bright, swivel LCD for Live View, and it shot some of the highest quality video available from any DSLR at any price. In addition, this was a true pro body that was built to extremely rugged standards, plus there were Pro series lenses

available for it as well. I had considered the Olympus OM-D cameras—excellent, high quality camera bodies, but they didn't have the video quality that I needed at the time.

So here's my core set of camera gear ([Figure 2.15](#)):

Camera bodies

Panasonic Lumix GH3 and G6

Lenses

- Bower 7.5mm f/3.5 fisheye (this focuses to 4 inches)
- Lumix 12–35mm f/2.8 (constant aperture zoom that focuses to 10 inches)
- Olympus 60mm f/2.8 macro
- Olympus 50–150mm f/2.8
- Nikon 300mm f/4 manual focus (An adapted lens that gives me the equivalent of a 600mm f/4 lens on 35mm-full-frame for a fraction of the cost and weight—it also works great with extension tubes.)

Accessories

- Extension tubes
- Achromatic lens
- Accessory flash (Olympus)
- Gitzo tripod with Really Right Stuff head (These are the smaller versions because I don't need a heavy tripod with this gear.)
- MePhoto monopod with Really Right Stuff head
- Several beanbags



Figure 2.15 My everyday bag that usually goes into the field with me. I kept my hand in the picture to give you an idea of its size.

Shooting Macro in B&W

You will see a few photographs throughout this book in black-and-white. I am not going to make a big deal about this because I think it's simply another part of photography, but it is something that a lot of people don't think about with close-up work. There is a lot of potential for really cool black-and-white images when you get up close.

A challenge that many photographers face with black-and-white photography comes from thinking that this type of photography is just about the removal of color. That's not true. Good black-and-white photography is its own medium and needs to be treated as unique ([Figure 2.16](#)).



ISO 100 • 1/1000 sec. • f/3.5 • 50-200mm (MFT)

Figure 2.16 Purple coneflower photographed in a garden could be many shades of gray in black-and-white. How you interpret those shades of gray is critical.

The key is to understand how contrast works within black-and-white. Something that looks good in color does not necessarily look good in black-and-white. Sometimes as photographers, we get so excited by all of the color in front of us that we remember that and don't also remember that a viewer only sees what is in the black-and-white image.

A great way of learning black-and-white is to shoot in black-and-white. This is something I recommend to all photographers to try at some time or another. I guarantee it will change the way you see the world *and* your photography even if you never shoot black-and-white again. Here's how to do it:

1. Set your camera to shoot RAW + JPEG.
2. Set your camera to capture in monochrome or black-and-white (all modern DSLRs give you this ability in the camera menus).

That's it! Now go out and start taking pictures. Everything that you see on your LCD will be in black-and-white, so it can be very helpful to shoot in Live View. That forces you to look for contrast that actually shows up in black-and-white.

When you get back to the computer, all of your JPEG files will be in

black-and-white. Your RAW files will be in color because RAW files cannot be anything except color.

If you are using Lightroom for your images, there is something you need to pay attention to: By default, Lightroom will import both your RAW and JPEG files to the hard drive, but it will only display the RAW files. Before importing your black-and-white shoot, you need to tell Lightroom in Preferences/General to treat JPEG files as separate from RAW.

If you want to learn more about black-and-white photography, check out my Peachpit Fuel e-book, the *Power of Black-and-White in Nature and Landscape Photography*.

Chapter 2 Assignments

Push your gear

Without worrying that you have the right or wrong gear, go out into a location that has some good close-up possibilities and try all of your lenses up close, as close as they will shoot. Try different subjects and see what happens. You may be surprised at what you get.

Discover what live view can do for you

All modern DSLRs have Live View capabilities. If you have not used yours, give it a try. It might be a little disconcerting at first. Live View doesn't show you what an optical viewfinder shows. An optical viewfinder shows you what your eye sees of the world, but that's not what the camera sensor sees. One very cool thing about Live View is that it shows you what the sensor is actually capable of seeing.

Get out of the zoom habit

Avoid just setting up a tripod and zooming in and out for your close-up shots. If you are using a zoom lens, see what you can get at its closest focusing distance when set to its widest-angle focal length. Then do the same thing at the telephoto focal length. You will find that you get very different views of the close-up world in front of you. That's worth thinking about.

Try black-and-white up close

I gave you some ideas about shooting in black-and-white in the last section of this chapter. Now go set your camera to shoot in black-and-white with RAW + JPEG and give it a try. Look for contrasts in brightness between your subject and background. That can help a lot.

Try shooting with your lens wide open for really shallow depth of field that can separate a sharp subject against a soft background. That is often a very useful tool for black-and-white close-ups.

Start thinking about light

Light is obviously one of the critical elements of photography. But one of the cool things about close-up work is that you can move around your subject and change the light instantly on it and the background. Just by moving around! You can't do that with more distant subjects. So get out and look for a subject that is in some sunlight and then try photographing it from different angles so that you get different light on both the subject and the background.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

3. Mastering Macro Sharpness



ISO 200 • 1.6 sec. • f/16 • 12-35mm lens (MFT)

Sharp photos up close require special attention

Sharpness can be a significant challenge when you are shooting up close. I constantly get questions and comments about this from photographers exploring close-up and macro work. They quickly notice that sharpness can be a distinct problem, and many think then that a macro lens will solve everything. But when that macro is added

to the camera bag, these same photographers quickly discover that the sharpness challenges keep coming.

Up close, there are three main sharpness challenges: camera movement during exposure, focusing on the right spot, and extremely shallow depth of field. In this chapter, I want to give you direction and techniques to master camera movement, the first sharpness challenge. In the following chapter I'll cover the last two challenges, which are focusing and using depth of field effectively, so that you can get the sharpest images possible for your close-up photography. If you want consistently sharper photos, the principles laid out in these two chapters will help you achieve exactly that.

Poring Over the Picture

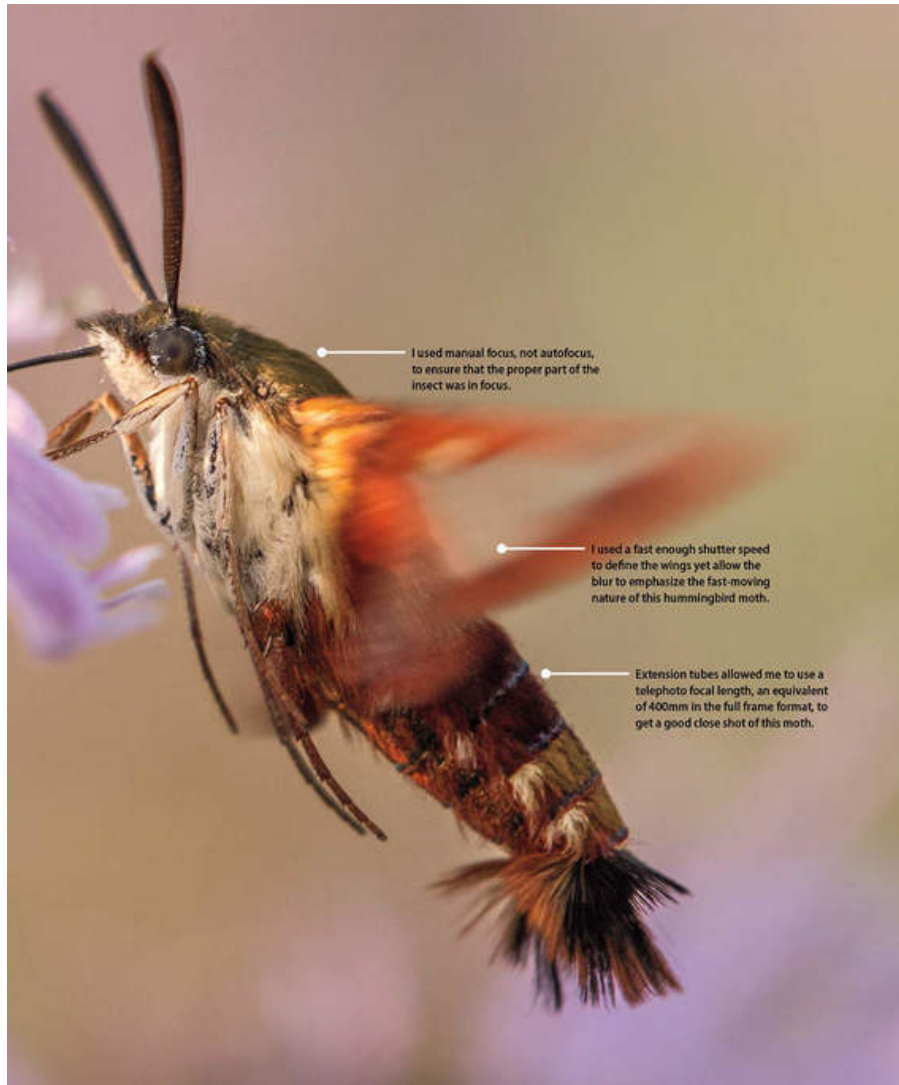
Hummingbird moths are cool little moths that come out during the day and feed on the nectar of flowers. They can be difficult to photograph because they move quickly from flower to flower and don't usually tolerate a very close approach to them. I used a telephoto zoom lens with extension tubes to allow close focusing and stayed a good distance away from the wild bergamot flowers where this and other insects were working. This was in a great patch of prairie in central Minnesota.



ISO 400 • 1/800 sec. • f/5.6 • 50-200mm lens (MFT)



The foreground flowers and the background are out of focus because of limited depth of field, and this helps emphasize the insect.



I used manual focus, not autofocus, to ensure that the proper part of the insect was in focus.

I used a fast enough shutter speed to define the wings yet allow the blur to emphasize the fast-moving nature of this hummingbird moth.

Extension tubes allowed me to use a telephoto focal length, an equivalent of 400mm in the full frame format, to get a good close shot of this moth.

The Camera Movement Challenge

Camera movement during exposure is one of the biggest problems for getting sharp images at any distance, but up close it is magnified tremendously. It is a true killer of getting great shots up close. Camera movement during exposure even gets worse as you move closer toward the true macro image.

This is not just a problem for the beginner or the amateur. Everyone who shoots close-up images has to deal with camera movement, including the pro. Notice that [Figure 3.1](#) looks sharp, yet when we go in tight for a detail ([Figure 3.2](#)), it is not. I shot this in good light, on a tripod, with a superb camera and lens, yet it is not sharp due to

camera movement during exposure.



ISO 100 • 1/30 sec. • f/16 • 200mm lens (APS-C)

Figure 3.1 This detail of a paintbrush plant looks okay printed small and whole.



Figure 3.2 Enlarge the image by cropping into the key part of the plant, and you quickly see a significant problem with sharpness.

Many times I have been frustrated by images that were not as sharp as they should be because of such camera movement during exposure. A

difference between the pro and an amateur here is that the pro recognizes the possibility of camera movement during exposure and will both look for it and try to minimize it, whereas the amateur often doesn't see it and feels that he or she has to be satisfied with less than optimum sharpness because they are "just an amateur." You don't have to settle for that at all.

Think of it this way. Imagine you are taking a photograph of a big beautiful landscape spreading out in front of you. If your camera moves just 1/32 inch during that exposure, that 1/32 inch isn't much in a huge landscape. You probably won't even notice the difference as far as sharpness goes.

Now think about photographing a subject up close that is covered in an area only inches by inches. Now that 1/32 inch is definitely enough to cause some blur during the exposure. It might not be enough to make everything look seriously blurry, but it will blur things enough to take the edge off of the sharpness, reducing it to a noticeable degree.

This problem with sharpness shows up in two ways. When the camera movement is distinct enough, you will definitely see that movement or blur in the photograph itself. Then it is pretty obvious that the camera moved during exposure ([Figure 3.3](#)).



ISO 800 • 1/20 sec. • f/5.6 • 180mm lens (APS-C)

Figure 3.3 The blurriness of this rhinoceros beetle in Costa Rica comes from movement of the camera while the shutter was open.

However, you can have problems with camera movement during exposure and not have an obvious blur to the photograph. What happens is that fine little details in the picture blur and change the contrast of the image. The picture may look sort of “sharp,” but the image does not have the contrast in the sharp areas that it should. It loses something called image brilliance, which definitely affects the appearance of the photograph.

You can see this quite well in the photos in [Figure 3.4](#). These photos were taken right after each other with exactly the same settings. The photo on the left looks sort of okay if you don’t compare it to the photo on the right. When compared, the contrast and brilliance of the sharp image is obvious.



ISO 400 • 1/160 sec. • f/8 • 60mm lens (MFT)

Figure 3.4 Compare these two photos of a green lynx spider. Both were shot exactly the same, but the photo on the left has much less contrast than the photo on the right due to camera movement during exposure.

A Note About Image Size

The size of your final image, whether projected, on a big monitor, or made into a print, has a strong impact on the perception of sharpness. The bigger the image is and the closer your viewer is to it, the more obvious sharpness challenges are going to be. On the other hand, if your images are never particularly big, such as when they’re on Facebook or seen at a distance (such as high on a wall), then the perception of sharpness is much different. Viewers will not notice the same problems with sharpness as much or even at all.

Because of this, you might not always see the full impact of sharpness effects, good or bad, in a book because in books images are not always printed big.

You can always confirm that camera movement during exposure is causing you problems if you select a close-up image ([Figure 3.5](#)) and enlarge it enough to see fine bright details. It is not unusual, for example, to get little highlights of light on a flower or an insect when you're photographing in good light. These little highlights should be circles or very close to circles. When they start becoming short little lines, as seen in [Figure 3.6](#), that is camera movement and will actually show you the movement of your camera during exposure.



ISO 400 • 1/13 sec. • f/5.6 • 60mm lens (MFT)

Figure 3.5 This unique insect larva (a relative of the ladybird beetle) is a mealybug destroyer.



Figure 3.6 When the image is enlarged (left) you can see the movement of small highlights (right).

The Craft of Sharper Photos

Getting sharper photos is less about the camera and lens you have than it is about the craft of photography. Your craft influences the impact of camera movement on your images.

There are several actions within your control that might affect sharpness during exposure; actions that potentially either increase camera movement or, possibly, eliminate it altogether:

- How you handle the camera, including how you press the shutter.
- Which shutter speed you choose.
- The camera support decisions at which you arrive.

How You Handle Your Camera

How you hold your camera and how you press the shutter have a big influence on camera movement during exposure. This is all about stability. You need to try to keep your camera as stable as possible as you are taking the picture. Many photographers have gotten in the habit of putting their elbows out like they are flapping their wings and then holding the lens gingerly from the side, neither of which are very stable positions for the hands and camera.

There is truthfully only one way to hold your camera to gain the maximum stability and the least amount of camera movement. It doesn't matter whether you're right- or left-handed; cameras are simply designed to be held this way. Here's how you do it:

1. Grab the camera with your right hand around the right side of the camera, usually around some sort of grip that is built into the camera.
2. Turn your left hand palm up ([Figure 3.7](#)) and place the camera body and lens into the palm of that hand.



Figure 3.7 Grab your camera in your right hand, then place it into the palm of your left hand. The camera bracket seen on my camera is an L-bracket used for quick-release tripod heads.

3. Bring your elbows into the sides of your chest if possible ([Figure 3.8](#)).



Figure 3.8 Then bring your elbows in for the most stable way of holding your camera.

4. If you can't bring your elbows into the sides of your chest, see if there's some way that you can support them, including placing them against the ground, a tree trunk, your knees, or anything else that can provide additional stability.

As shown in [Figure 3.8](#), this is a very steady way of holding your camera and will minimize camera movement during exposure. Because your left hand is under the camera now, this keeps the camera from bouncing up and down as you press the shutter. Keeping your elbows in, or in some way supported, also minimizes extraneous movement that can cause problems.

Now that you're ready to take the picture, consciously squeeze the shutter. All too often photographers will punch that shutter button, which will almost always cause some camera movement. If you squeeze the shutter down, there is no jarring movement to bounce the camera. Camera shutter releases are designed to turn on a number of things in the camera as the camera gets ready to shoot. Because of this, there will be a little distance that you have to press the shutter down before it releases. Practice with your camera so that you know what that distance is. Then you'll be able to partially depress your shutter as you get ready to take the picture, pressing it all the way only when you actually take that shot.

Tripod Mounts on Lenses

Tripod mounts are included on many telephoto lenses; it's important to use them. However, they seem to get in the way when you are using the lens handheld, so photographers sometimes remove them. That is a mistake because it means you will try to use the camera and lens without that mount (it is too much trouble then to find it and remount it), which causes serious problems with camera movement on the tripod (because the camera and lens are unbalanced) and stress on the camera lens mount.

The way around this is to loosen the tripod mount and rotate it so that the mount itself is on top of the camera, but never removed. This puts it out of the way of your holding the camera and lens, yet it is always there, ready to be rotated back into position to use with a tripod.

Shutter Speed

Shutter speed is the next key element of your craft to give you sharper pictures up close. It is very important that you pay attention to what shutter speed your camera is using or that you are setting. The shutter speed determines how long your camera is not only exposed to the light, but also exposed to any possible camera movement.

This is extremely critical for close-up work. As noted before, a slight bit of camera movement on a big landscape picture may have little effect on sharpness, yet that same movement for close-up covering of a small area will have a big impact. This makes close-up work very sensitive to shutter speed, and this can have an impact on your work regardless of whether you are shooting handheld or using a tripod. Fast shutter speeds are critical, as seen in [Figure 3.9](#).



ISO 200 • 1/1000 sec. • f/4 • 150mm lens (MFT)

Figure 3.9 Photographers often think of fast shutter speeds only being used for sports, yet they play an extremely important role in getting sharp photos up close.

You may have heard the old rule of sharpness that says that the slowest shutter speed that you can handhold is $1/\text{focal length}$ of the lens being used, such as $1/100$ for a 100mm lens. *Unfortunately, that doesn't work for close-ups.* That shutter speed is going to be too slow. In addition, that shutter speed relationship to focal length is only appropriate with a 35mm-full-frame format camera. Finally, everyone

is a little different so one person might get by with a slower shutter speed yet another person may need a much faster shutter speed to get the same sharpness to their images.

One reason for the problem with shutter speeds is that often photographers worry about not having enough depth of field in their close-up images (and that can be a problem—we will be talking about that later in the chapter), so they choose a very small aperture. That results in a slow shutter speed, which is likely to cause problems with sharpness. So instead of getting an image with more sharpness because they have more depth of field, they end up with an image with less sharpness because of the slow shutter speed.

Here are some tips that you can use:

- For 35mm-full-frame cameras, use a minimum shutter speed of $1/2 \times$ focal length. For example, if you are shooting at 100mm, try 1/200 sec. ($1/2 \times 100$) and faster.
- For APS-C cameras, use a minimum shutter speed of $1/3 \times$ focal length. If you are shooting at 100mm, try 1/300 sec. ($1/3 \times 100$) and faster.
- For MFT cameras, use a minimum shutter speed of $1/4 \times$ focal length). If you are shooting at 100mm, try 1/400 sec. ($1/4 \times 100$) and faster.
- Watch your focal length with a zoom. Your shutter speed may need to change if you go from a wider focal length to a stronger telephoto. For example, you need a much faster shutter speed for sharp photos at 200mm than you do at 70mm.
- Do some tests. Try handholding your camera up close while shooting at different shutter speeds and then compare the sharpness that you get.

If this means that you have to shoot with a wider f-stop or a higher ISO in order to get that higher shutter speed, then do it. You certainly can shoot at much slower shutter speeds when your camera and lens are mounted on a tripod, but the idea that focal length does change sensitivity to camera movement can have an impact on how you use your camera on a tripod as well.

Continuous Shooting for Macro

Sometimes you are forced to shoot at a slower shutter speed than you would like. You might not have your tripod or the shot may simply not be possible if you have to set up your tripod. There is a trick you can use that will help you get sharper images even under these

conditions.

Set your camera to continuous shooting, then hold your shutter down as you shoot. Let your camera take four, five, or more photographs of your subject. As the camera shoots, it will often stabilize somewhat. At least there is typically less movement in the middle pictures of a series of shots done like this. The result is that you will frequently get at least one picture that is sharp, sometimes more. This does not work at really slow shutter speeds, but depending on the focal length of your lens, you can often get sharp photos at shutter speeds from 1/4–1/30 sec. that would not be possible otherwise.

Camera Support

When you shoot at shutter speeds slower than what will give you sharp pictures handheld, then you have to add support to your camera. There are many possibilities for that support. A tripod is the most obvious one, but monopods and beanbags can also be very useful for close shooting. I constantly use all three.

Tripod

If you want to get the most out of your gear in terms of sharpness, you have to have a good tripod and head and know how to use them effectively for close-up shooting. The best quality lens in the world for macro shooting is no match for even an inexpensive kit lens that comes with a low-priced DSLR but is used with a tripod.

Sometimes it is easy to shoot up close with a tripod and sometimes it is not. If the wind is blowing, a tripod can be challenging because you can't move the camera as the subject moves. Still, a lot of problems with tripods are based more on lack of practice using the tripod than true problems with using a tripod up close. You'll find that most pros use a tripod a lot when shooting close-ups of any kind. With practice, you will learn to use a tripod quickly and efficiently, even when shooting close up.

I know that photographers want some tips to make this use of a tripod easier, but truthfully, there is no substitute for practice. This is a little bit of a catch-22; a tripod can be a struggle at first as you are learning to best use it, so you don't like using it as much. You have to bite the bullet and just use it for a while until you are comfortable with all of its controls and using it up close. There is no other way. But the good news is that with practice, the use of the tripod up close gets easier

and easier.

It is important to have a good tripod. I have seen too many photographers spend a lot of money on cameras and lenses and then skimp when it comes to a tripod. Tripods are not as sexy as other gear and seem to be expensive for “what you get.” Consider a good tripod an investment that will last you a long time, likely longer than your camera will.

Look for a tripod that is both sturdy and lightweight, along with a matching lightweight but solid head. Carbon fiber tripods and modern aluminum alloy tripods can offer you rigidity and light weight at the same time. Carbon fiber tripods can be expensive, but they are well worth the price because you’ll have a tripod you actually feel like taking with you.

I have a Gitzo GT 1140 travel tripod with a Really Right Stuff BH-40 ballhead that I love ([Figure 3.10](#)). Total weight is about two pounds, so it is no problem to carry. However, it is not for everyone. It works great with my small and lightweight mirrorless camera gear. If you have 35mm full-frame gear, you will likely need a bigger and heavier tripod and head to support that heavier gear.



Figure 3.10 You can see the nicks and dings on my tripod and head showing their steady use for many years.

A good tripod is not cheap and cannot be purchased at Target or Walmart. Go to a local camera store and check out what they have. Set up the tripod and lean on it to see how stiff and rigid it is. A lightweight, wobbly tripod is worse than no tripod at all because it will increase vibrations that will cause camera movement during exposure.

While a tripod does hold your camera steady, it can still vibrate and move during the exposure if you aren't careful in your tripod technique. This is a challenge at moderately slow shutter speeds such as 1/4 sec.–1/30 sec. (depending on focal length). If your subject is not moving, you can use the 2-second self-timer setting on your camera. That allows the tripod and camera to settle before the shutter goes off.

You can also use an electronic cable or remote release for your shutter. That can be used even with subjects that move. Otherwise, be careful how you press the shutter button so that you do not jar the camera. You can also add weight to your tripod (which gives it mass that does not vibrate as much)—an easy way to do that is to hang your camera bag on (if there is a hook for this) or over your tripod.

Mirror Bounce Challenges

For standard DSLRs, there is a mirror inside the camera body that bounces up and down to allow you to see through the lens with your viewfinder. That bounce can cause vibration when your camera is on a tripod, vibration that will cause unsharpness due to camera movement during exposure. This tends to be mostly a problem at moderately slow shutter speeds, from about 1/2sec.–1/30 sec.

Many cameras allow you to lock up the mirror to prevent this; however, doing that is a pain when you are doing close-up photography. With the mirror locked up, you can't see through your viewfinder. There is, however, a solution! Use Live View. Almost all cameras today have Live View, which shows you exactly what the sensor is seeing through the lens and displayed on your LCD. The mirror has to be up in order for Live View to work, so immediately you have no problem with mirror bounce. On mirrorless cameras like mine, there is no mirror bounce problem because there is no mirror!

Dealing With the Wind

A subject blowing in the wind when your camera is

locked to a tripod can be a problem. It will keep going in and out of focus. In addition, the movement of the subject can also create problems with blur because it will be moving too fast for the shutter speed. There are a couple of things that you can do to help deal with this.

First, watch the movement. Often you will find that a moving flower, for example, will pause and you can time your shot to hit that pause for both focus and minimizing subject movement blur. Second, you can try holding the subject by grabbing it somewhere out of the frame. You can do this with your hand or you can use a special clamp such as the Wimberley Plamp. Yet, sometimes, there really is nothing you can do and you have to accept you're not going to easily photograph this particular subject that day.

Monopod

I find a monopod very useful for stabilizing my camera for certain types of close work. A monopod is like a single leg of a tripod, so you are only dealing with that one leg. This makes it pretty easy to move into bushes and in other tight locations. I find it's really helpful when I'm following insects so that I don't have to constantly hold the camera at the ready. That gets tiring!

A monopod will not help you with really long exposures. It definitely does not have the stability of a tripod. But when you are traveling light or you're tracking your subject moving across some flowers, a monopod really comes in handy. They are not as expensive as tripods, plus there are some pretty good inexpensive monopods that work just fine.

I have a very lightweight Gitzo monopod, plus a handy MeFOTO monopod ([Figure 3.11](#)) that I modified for a little more stability when moving around following insects. I bought a relatively inexpensive monopod tripod base from ebay.com and epoxied it to the bottom of the MeFOTO monopod. This gives me a tilting base that does not slip, though it can be hard to push into a tight clump of plants. There are monopods available on the market with this base already included.



Figure 3.11 A monopod is a simple support that is easy to use and carry and will help you get sharper images as well as hold your camera at the ready for shooting.

You do need a ballhead for a monopod; otherwise, it can be really awkward to place properly. I have a very small Really Right Stuff head that works great with the tripod brackets on my cameras without adding a lot of weight.

Beanbag

I consider a little beanbag one of my most important accessories. I think it is critical for my work with close-up photography, and there is always a beanbag packed in my camera bag.

A beanbag is a soft, moldable bag filled with plastic pellets (originally they actually were filled with beans) that fits under your camera and lens to give it some support against all sorts of surfaces ([Figure 3.12](#)). You'll see a lot of low-angle shots throughout my work because I love doing that. However, I don't like putting my camera directly on the ground because of dirt, sand, and grit that can get into the camera body and lens no matter how well sealed it is. So a beanbag allows me to put something between the camera and lens and the dirt.



Figure 3.12 A beanbag molds to your camera and lens to support them on almost any surface. It is especially useful for low-angle shots.

A beanbag molds to the shape of your camera and lens so that you can fully support the camera for long exposures, and even allows you to take your hands off of the camera and still maintain the shot.

Beanbags can be placed on more than the ground—they can be put on a fence post, a rock, a log, and all sorts of other things you find near your subject that can help support your camera. This allows you to get your camera into places where you might not otherwise be able to get the shot.

I have used a beanbag against my tripod legs in order to get a lower angle shot with some support. Or I've found and moved some nearby rocks that were the right height for the shot and put the bag on them. I have even used a beanbag on my tripod head when I have had a camera without the right quick-release plate for that particular head.

Beanbags come in all shapes and sizes. Small beanbags can be packed in your camera bag to always be ready for use. You can use larger beanbags for big lenses, especially when using telephoto lenses for wildlife while shooting from a car. I think most photographers will be fine with a small beanbag, regardless of the size of their camera, because it will fit in a camera bag, meaning they will always have one handy. Once you start using one, I think you will not want to be without it. Beanbags are generally made of lightweight but durable

nylon fabric with lightweight plastic pallets so that they weigh very little.

I have had my little Steadybag beanbag for a long time. It has gotten so beat up that the logo is barely visible, and I have had to have it repaired at a local shoe repair store. For a long time, I didn't think these bags were available anymore because I never saw them in camera stores. However, I have discovered that they are available on the Internet.

Image Stabilization

In the early 1990s, Canon and Sony worked on an optical system that would sense camera movement and then adjust lens elements to compensate for that movement, allowing sharper images at the film plane. Today, many manufacturers offer image stabilization through the use of special lenses or a moving sensor that compensates for camera movement.

This has become an important tool for photographers. It does not eliminate the problems of camera movement and sharpness, but it helps. Generally, image stabilization will give you the benefit of about two full steps of shutter speed, e.g., if you had to shoot at 1/250 sec. for a sharp photo before, now you may be able to get an equally sharp image at 1/60 sec. Image stabilization should usually be turned off when you are shooting from a tripod, and never expect it to work at any shutter speed.

Chapter 3 Assignments

See what camera movement looks like

To clearly see what camera movement is doing to your images, you need to be able to recognize it. Find a close-up subject with a lot of contrasty little details such as a section of text on a magazine or newspaper page. Put your camera on a tripod and focus in on these details. Take a picture using your best tripod technique, such as using the self-timer. Then take a picture without that self-timer. Finally, try bumping the camera as the shutter releases. Compare these images on the computer and see what really happens to the contrasty details.

Do some shutter-speed trials

Discover something that most other photographers never learn: how your handholding technique works with different shutter speeds. Use a flat, easy-to-focus-on subject such as a page from a newspaper or magazine taped to a wall. Shoot a series of photos as you change your shutter speed one full step at a time (e.g., 1/250, 1/125, 1/60, 1/30), then compare the shots on your computer screen, enlarging details as needed, to discover where you are at your best.

Check out Live View for sharpness

I find that a lot of photographers have not used the Live View on their cameras. It is not a gimmick! And it can really help with sharpness. Find a subject in the shade (so you can use slower shutter speeds) that won't move while you do this assignment. Put your camera on a tripod and focus carefully on the subject. Use a combination of ISO and f-stop that give you a shutter speed of 1/30 sec. or less. Take a series of pictures using the DSLR viewfinder and then with Live View while using other slower shutter speeds. Compare the results on the computer.

See what a beanbag can do for you

You can test out what a beanbag can do pretty simply without a big investment. Go to any athletic gear store, such as Sports Authority, and look for a little, inexpensive hand-exercise soft ball (sometimes called a stress ball). While not as useful as a true beanbag, this will work! Take it with you and try it under your camera on all sorts of surfaces, including on the ground.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

4. Optimal Focusing



ISO 200 • 1/80 sec. • f/8 • 60mm lens (MFT)

Focus point, depth of field, and sharpness

In the previous chapter I covered the first challenge, controlling camera movement during exposure, to achieve sharper photos. In this chapter I'll discuss the second challenge, focusing so that the shot makes sense to the viewer; and the third challenge—also related to focus—controlling depth of field when you're going close.

What is sharp in the image? Where should your sharpness be emphasized? How do you determine the best depth of field for a particular shot? These are challenges that all close-up photographers face.

Poring Over the Picture

When you are this close to a subject, you had better be sure you are focused on the right part of it. This dragonfly was photographed early one misty morning. It was covered with water droplets so it could not easily fly. That allowed me to get close. Then I made sure the eyes were sharp because the eyes of any creature need to be sharp or the viewer will not see the photo as sharp.



ISO 800 • 1/100 sec. • f/8 • 60mm lens (MFT)



Even though the tail is out of focus,
it is still important to the composition.

Critical focus is
on the eyes.

Depth of field is very limited,
but that also creates emphasis
for the image.

By not showing the ends of the
wings, I can ensure that the viewer
sees the face of the insect.



The background is a pleasant soft green from shallow depth of field.

The Focusing Challenge

No matter what you do, your area of sharp focus is always going to be very narrow when you get up close. We're going to look at depth of field in the second section of this chapter, because there are some things that you can do to use depth of field effectively. Still, the closer you get, the shallower the depth of field becomes no matter what you do. This is a matter of physics, not about the gear or technique you use.

So your focus point becomes critical as shown in [Figure 4.1](#). Very little of this image is actually sharp, yet you perceive it as a sharp photo because the important part of the image is absolutely sharp.

You can't count on this to simply happen. You have to choose very carefully what should be sharp in your picture. If you miss the right focus point for your subject, your picture will look out of focus and not sharp even if you have done everything right and there is something in the picture that is sharp.



ISO 400 • 1/800 sec. • f/3.2 • 90mm lens (APS-C)

Figure 4.1 Notice how much of this photo is out of focus, yet people will perceive this shot as very sharp because the critical parts of the little katydid nymph are very sharp.

This can make all of your best efforts go to waste. I have seen photographers get very frustrated with this, so much so that they quit doing close-up work or they start buying additional equipment in hopes of solving this problem. This is not an equipment problem. As you'll see, it is a problem that can be made even worse by autofocus.

The key to getting your focus in the best place for your image has to do with one very simple thing—paying attention. You simply have to pay attention to where your camera is focused, what is most important in your picture, and what the photograph looks like.

For the digital photographer of today, that last point is really easy to deal with—use your LCD. This is a key part of a digital camera. Take your shot, then check the image in the playback on your LCD. You don't have to do this all the time, but if you are not sure about where the focus is in your picture, use that LCD. Newer cameras have very high resolution in their LCDs, which make this easier to do, but all cameras can help you if you simply magnify the image. Play back your

image on the LCD, then magnify it over the point where it should be sharp to be sure that it is.

Here are some tips to help you determine the best point for focus:

- What is key to the composition? It should be sharp, as seen in **Figure 4.2**.



ISO 200 • 1/2000 sec. • f/5.6 • 14–42mm lens (MFT)

Figure 4.2 This tight shot of a yellow flower works because it is sharp where it must be sharp to support the composition.

- What is getting the strongest light? Light has a big influence on what a viewer sees in a photograph. If light is picking out a part of your subject to emphasize, then that should be sharp.
- Are the eyes sharp? If you are photographing insects, spiders, or any other small critters, be sure that the eyes are in focus. People expect eyes of living beings to be sharp and if they aren't, the picture is considered to be out of focus, as seen in **Figure 4.3**.



ISO 400 • 1/100 sec. • f/11 • 90mm lens (APS-C)

Figure 4.3 This could be a very cool photo of a baby praying mantis, but it isn't, because the sharp focus is on its rear rather than its front.

- What is the boldest part of your subject that is visible in the image? If it is a bold part of your subject and emphasized by your composition, it needs to be sharp.

AF and MF

Autofocus (AF) is a very important and totally valuable technology for cameras. However, it doesn't always work very well for close-up and macro work. That doesn't mean you can't use it for close-up work. I often do. But the challenge is that when you get up close, there are lots of things that your AF system can focus on, and it doesn't know the difference between one or the other, as you can see in [Figure 4.4](#). As soon as AF finds something sharp, it's done! It doesn't matter if that is the best focus point or not, because your camera doesn't care. The camera only cares that it found something it can render as sharp.



ISO 400 • 1/60 sec. • f/8 • 180mm lens (APS-C)

Figure 4.4 There are so many “edges” in this image that AF could focus on, including the back eye and all of the edges of the leaves. MF was used for the shot.

With manual focus (MF), you deliberately focus your camera lens on a specific point within your scene. Because you are using MF, you are the one making the decision—the choice as to what should be sharp and what can be allowed to go out of focus. This does not mean, however, that MF is always the best way to go or that it is always going to be easy.

For MF, do a rough focus with your lens, then move your camera gently toward and away from your subject to refine your focus. This is a very effective way of ensuring that the key part of your subject is in focus. Things will snap in and out of focus in a much more obvious way than if you were to simply rotate the MF ring of your lens. (Obviously, you have to be careful that you’re not bouncing your camera all around or you will have sharpness problems from camera movement during exposure.)

You can use this same idea with AF, but you have to be able to lock your focus. Get in close using your AF to get your rough focus. Next lock your focus and move your camera gently toward and away from the focus point until it looks sharp, then take the picture. All cameras will lock focus by default when you press the shutter button halfway (unless you have changed how the button functions in your camera’s custom functions). Many cameras have a button on the back of the camera that is either programmed for locking focus or can be

programmed for locking focus.

Regardless of how you lock your autofocus, it is important that you watch what your autofocus is doing when you are focusing up close. Pay attention to the autofocus points so that you know where your camera thinks it should be focusing.

The Focusing Rail

A focusing rail is a special accessory that fits between your camera and tripod head. It has a geared track with knobs that allow you to move the camera toward and away from the subject (there are even some models that allow side to side movement, too). This gives you precise control of moving the camera for focus while keeping the camera absolutely locked down tight to the tripod.

I have used this tool in the past, but not anymore. It adds a lot of bulk and weight to your gear—too much bulk and weight for me. I mention it because it can be a useful tool for the right photographer who is willing to carry this extra bit of gear.

Live View Benefits for Focusing

If your camera has Live View and you aren't using it, get out your camera and your manual to learn how to turn it on and start using it. Live View is one of the most important technologies in digital cameras for close-up and macro work.

Live View is simply the LCD display of what your sensor sees as it looks through the camera lens. If you are using a traditional DSLR, the camera mirror is locked up for Live View, so the lens is projecting the subject directly onto the sensor and the camera is then interpreting that look and displaying it on your LCD. If you are using a mirrorless camera, there is no mirror so what you see is always what the sensor sees.

Now you can literally focus on your sensor so that the sensor precisely captures what should be sharp ([Figure 4.5](#)). In addition, you get a very important aid to this focusing—you can enlarge the image on your focusing screen in order to more precisely focus your shot. Here's where you can use your MF and rotate your focus ring until this area is sharp because you have magnified the image to only see that.



Figure 4.5 Live View allows you to focus quite precisely by seeing exactly what the sensor sees and by enlarging the view.

Another benefit to Live View is seeing what your depth of field looks like. You have to set your camera to display the actual shooting f-stop. By default, to allow for more accurate focusing the camera shows you the wide-open, maximum f-stop of the lens, but most cameras allow you to set up a depth of field preview that shows up on the LCD.

When you start using Live View for focusing, you may find that it is challenging to do. Don't give up! This is simply something you have to practice, just like learning to ride a bicycle. Once you practice a bit with it, you will discover that it works for all sorts of subjects that you might not have expected.

The Depth of Field Challenge

Depth of field is the distance of sharpness in depth from close to far. It is not an on/off, either/or part of sharpness. Depth of field changes continuously from absolutely sharp to absolutely out of focus with a continuous range of nuances in between. With close-up work, it will be important how sharp the background appears, not necessarily whether it is actually sharp or not. Just because a background is out of focus does not mean it is unimportant. Also, deep versus shallow depth of field should never be an arbitrary decision. Choose what is appropriate to the subject and what you want from your photo, as

shown in [Figures 4.6](#) and [4.7](#).



ISO 400 • 1/100 sec. • f/2.8 • 12–35mm lens (MFT)

Figure 4.6 This image and [Figure 4.7](#) have the same framing, but not the same composition. This prairie sunflower gains an emphasis in this composition through the use of shallow depth of field.



ISO 400 • 1/6 sec. • f/11 • 12–35mm lens (MFT)

Figure 4.7 In this image, greater depth of field gives more emphasis in the composition to the setting and environment around the flower.

No matter what you do, depth of field is always relatively shallow when you're up close. Because of this, many photographers think that they have to stop the lens way down to f/16 or f/22 in order to get a good picture. That's not true. In fact, that may cause problems for you that can reduce the possibility of you getting a great shot. Depth of field is a lot more than whether or not you shoot at f/16.

To fully understand depth of field, it is good to understand the three major factors that affect depth of field as you are shooting: aperture or f-stop, focal length, and distance to the focus point.

- **Aperture:** The aperture that you choose for a given shot has a big impact on depth of field. Small f-stops give more depth of field, while large f-stops give less depth of field. This gets a little confusing because of the way numbers are shown for apertures. A large f-stop will show as a small number such as f/2.8 or f/4. A small f-stop will show as a large number such as f/16 or f/22. The reason the numbers work like this is that they are actually fractions. Just keep this in mind: Small numbers mean small depth of field and large numbers mean large depth of field.

- **Focal length:** The next two chapters deal with focal length and close-ups with much more detail than I can give right here. However, it is important to keep in mind that wide-angle focal lengths give more apparent depth of field whereas telephoto focal lengths give less. This is one reason you see different focal lengths for macro lenses, i.e., choosing a different focal length changes the depth of field you get.
- **Distance to focus point:** Depth of field changes with your distance from your focus point, increasing as you get farther from your subject and decreasing as you get closer. In fact, as you move in closer to your subject, depth of field declines rapidly. When you are at true macro distances, there is nothing that you can do to get more than a fraction of an inch of distance that is sharp. This is a very good reason why you need to pay careful attention to where your focus point is.

Looking at Depth of Field Changes

In the photos you see in [Figure 4.8](#), the basic composition does not change, but the choice of aperture does change, which then affects how you see the composition. This is an important exercise for photographers to do if close-up and macro photography is something they really want to get better at. Doing this at least once to get a better feel of the craft of choosing an f-stop will teach a photographer more about depth of field than anything else I know.



ISO 200 • f/as shown • 1/varies depending on f-stop • 60mm lens (MFT)

Figure 4.8 This series of images of a little wishbone bush flower changes only in the aperture used. Notice how the depth of field changes; compare not only the extremes, but

also the more subtle, yet still important, changes from f-stop to f-stop.

The difference in depth of field, and the look of the background, is quite dramatic when you compare the widest f-stop at $f/2.8$ to the smallest at $f/16$. However, if you look closely, you'll see there is a change in the relationship of the subject to the background with every change in aperture.

One time when I was writing for a photography magazine many years ago, I wrote about changing your f-stop to affect the appearance of the background and how even the change of a single f-stop could make a difference. The editor got an angry letter from a reader that said I didn't know what I was talking about because it was only if you change from a very wide f-stop to a very small f-stop that you would actually see any difference. Obviously he had never done this exercise! Those differences from f-stop to f-stop can be very important to an image because they affect emphasis within a composition as well as whether a background is distracting or not.

So how do you know what aperture to choose? First, you need to consider if deep or shallow depth of field is more important for your subject. Second, take the picture and look at the image on your LCD. Take two or more and change the aperture if needed. With practice, you will start to see differences that matter as you change your aperture.

Using Deep Depth of Field

Since depth of field is always shallow close-up, using the adjective "deep" for depth of field might be pushing it a bit. Still, sometimes it is appropriate to use deep or at least deeper depth of field than others.

Deep depth of field allows you to emphasize relationships among details of your subject because you're able to see more of it in focus. It also allows you to create relationships between a subject and the background because now you'll actually be able to identify elements in the background (even if they are not sharp). Deep depth of field can tell your viewer whether a mushroom clump is growing in a pine forest or a maple forest because of what shows up in the background, as shown in [Figure 4.9](#).



ISO 200 • 1/13 sec. • f/11 • 12–35mm lens (MFT)

Figure 4.9 By using a wide-angle lens and a small aperture, I was able to connect this clump of mushrooms to its environment.

This is also about composition. Many photographers think that composition is only about what is framed within the viewfinder or on the LCD. Composition is much more than that. It is also about emphasis and depth of field, which strongly affect emphasis.

When you get really close, deeper depth of field can simply help you capture more of the subject in focus. When your subject is significantly bigger than the shallow depth of field of a close shot, even just a little deeper depth of field can help the viewer better identify what the subject is and what the picture's about.

Something you really need to keep in mind about deep depth of field is that as you allow more things to become defined by sharper details, you are also encouraging your viewer to look at them. That's great if you want them to look all around your picture and not just at your subject but it can also be a problem if you don't. Think carefully about why you might want deep depth of field and then check your LCD to make sure that that's really what you expected.

Using Shallow Depth of Field

Shallow depth of field is very easy to get when you're up close because you don't get a lot of depth of field anyway. However, to

really use shallow depth of field effectively, you need to go beyond thinking that an out-of-focus background is enough. As you can see from [Figure 4.8](#), sometimes even a slight bit of depth of field can be too much if you're trying to isolate and emphasize your subject.

Shallow depth of field is really useful in doing exactly that—isolating your subject within the photograph. There is no question that when your subject is sharp against a very blurred background, you're helping your viewers see exactly what you want them to see, as shown in [Figure 4.10](#). There are no distractions of sort-of-sharp things in the background to attract the viewer's eye.



ISO 400 • 1/125 sec. • f/2.8 • 60mm lens (MFT)

Figure 4.10 By shooting with my lens wide-open at its maximum aperture of f/2.8, I could create a simple, beautiful background to isolate my subject, a daddy longlegs.

Beautiful soft backgrounds also come from using a shallow depth of field. This is most pronounced when your background is most out of focus. Since distance affects depth of field, one way that you can ensure that your backgrounds are strongly out of focus is to move your camera position so that anything behind your subject is farther away.

For example, photographers often photograph flowers pointing their cameras down at the flower at a 45-degree angle. When you do that, the background is fairly close to your subject and will show up even

when depth of field is limited. If you drop your camera position to a lower angle, often the background will now be much farther behind your subject. That immediately creates a softer background that can contrast nicely with your subject.

Aperture Priority AE

Because depth of field, both shallow and deep, is so important to close-up and macro work, most photographers find that Aperture Priority Autoexposure (AE) is a good way to go for exposure. You will find that a lot of pros (like me) use this almost exclusively (with occasional uses of manual exposure). With this, you choose the aperture for depth of field and the camera sets the appropriate shutter speed. A caution: Pay attention to the shutter speed being chosen by the camera. Remember that shutter speed has a big impact on sharpness because of camera movement challenges during exposure.

The Diffraction Problem

Small apertures have a problem that many photographers are not aware of. If you are arbitrarily stopping your lens down to $f/22$ or smaller so that you get more depth of field, you may actually be reducing the sharpness of your photograph.

What happens is this: As apertures get very small, the rays of light coming through the lens bend or diffract along the edges of the diaphragm blades that make up your lens opening. This diffraction softens sharp edges so that the picture starts to lose its sharpness, image brilliance, and contrast. This gets worse as you focus closer. You can see the effect of diffraction on sharpness in [Figure 4.11](#), which shows details of the scene shown in [Figure 4.12](#).



ISO 200 • 1/100 sec. • f/8 • 12–35mm lens (MFT)

Figure 4.11 This piece of petrified wood made a nice test subject to look at the diffraction effect on a 12–25mm lens with extension tubes. This is the entire shot.

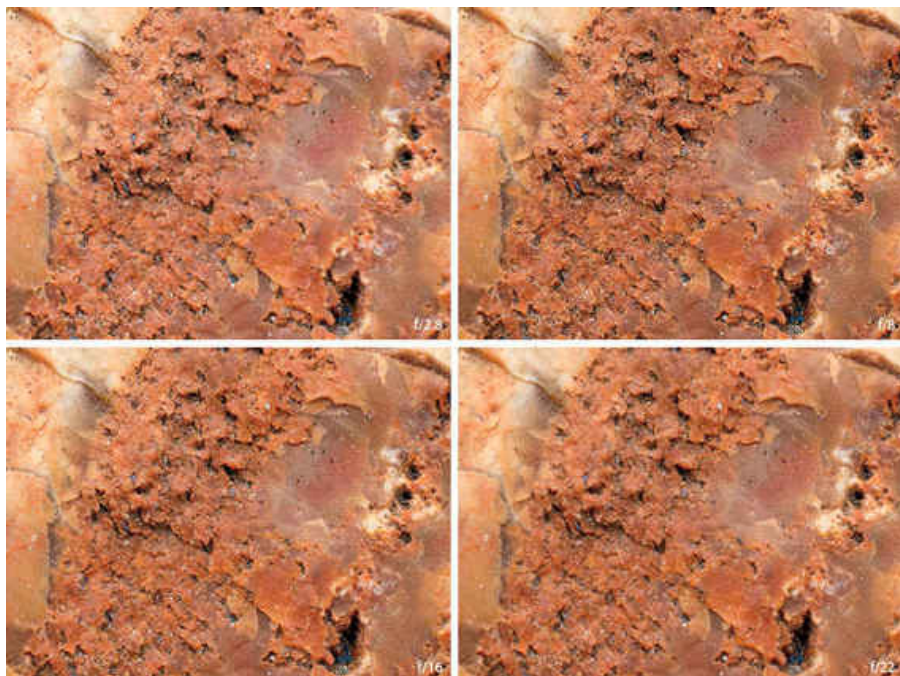


Figure 4.12 This series of images shows a detail of the original shot from [Figure 4.11](#). The middle range at f/8 is definitely

sharpest, and f/22 takes a serious hit in sharpness.

All lenses are affected by diffraction through small f-stops because this is an optical issue due to the physics of light, not to any lens quality issues—but there is no way to make a blanket statement about diffraction problems for a particular f-stop. This depends on the lens and especially the focal length. The only way that you can know what your lens will do at small f-stops is to do some tests.

For this reason, if I don't absolutely need the smallest f-stops, I will often shoot at f/8 or f/11. On some lenses, I don't have any problem stopping down to f/22, but I have also owned lenses where the change from f/16 to f/22 was so significant that I never used f/22.

Focus Stacking

Focus stacking is a unique digital way of dealing with depth of sharpness independent of traditional ways of dealing with depth of field. With this technique, you shoot a series of pictures as you change your focus point from near to far (near to far will depend on what your subject is), then you bring those images into the computer and use software to combine the shots into one image with deeper focus.

I used this technique for a shot of a green lynx spider just after it molted its old skin ([Figure 4.13](#)). Both spider and old skin are sharp. This would be impossible with just one shot. I shot several images, changing the focus slightly each time, to be sure the spider was sharp in at least one image and its old skin was sharp in another. Then I combined them in Photoshop to give a great range of focus without making the background too sharp. Luckily, there was no wind and the spider was resting after its molt.



ISO 200 • 1/80 sec. • f/10 • 60mm lens (MFT)

Figure 4.13 Focus stacking made this shot of a green lynx spider just after it molted its old skin possible.

I don't do this a lot because it is challenging and time-consuming. Your camera has to be locked down and the subject can't be moving. You need to change your focus point quickly through a series of shots that can be used in the computer later. David FitzSimmons is a master of this technique and uses it extensively in his *Curious Critters* series.

If you have Photoshop, combining the shots is fairly easy to do. There is also some dedicated software to help simplify this process. The

actual techniques are not within the scope of this book, but you can learn about them by Googling focus stacking online.

Chapter 4 Assignments

Try the aperture roundup

One thing you can do to give yourself an advantage over most other photographers is an exercise that gives you a more intuitive feel for f-stop choice. Set up your tripod with camera and lens focused on a close-up subject that won't be moving and that has lots of stuff in the background behind it. Set your lens to manual focus so that the focus never changes off of the same spot on your subject. Do a whole series of photos as you change your f-stops from the widest aperture possible on your lens (such as $f/2.8$ or $f/4$) to the smallest (such as $f/22$).

Test for diffraction challenges

Here's an exercise that is easy to do, but that most photographers have never done! Check out how well your lens or lenses do with diffraction effects. Set up your camera on a tripod, with the lens focused on something with good detail and something that won't change position (this could be a magazine or newspaper page). Be sure your lens is manually focused. Then try a series of shots starting at $f/11$, then $f/16$, next $f/22$, and then any smaller apertures your lens might include. Compare the shots on your computer screen, enlarging details as needed.

Go for deep detail

Set your lens to $f/16$ (using a wide-angle or at most slight telephoto focal length—not a strong telephoto), then take at least 20 photos in a row of varied close subjects where you deliberately try to include environment in the background. Use your LCD to help you refine your shots, always watching what is happening to the details in the background.

Isolate your subject

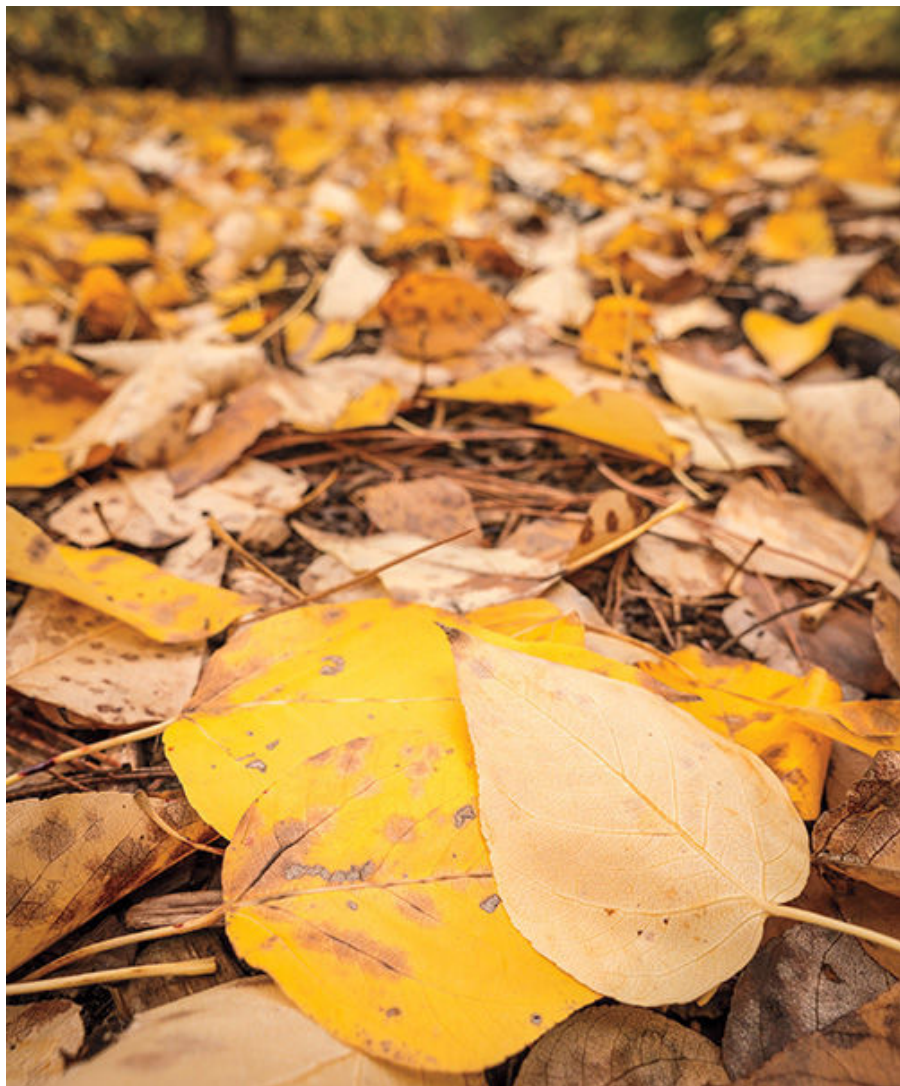
Set your lens (not using a wide-angle focal length) to its maximum aperture (the lowest number f-stop), then take at least 20 photos in a row of varied close subjects where you now deliberately try to isolate the subject from the background. Move your position as needed to increase the distance between subject and background. Again, use your LCD to help you refine your shots, always watching how the

background appears.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

5. The Environmental Lens



ISO 200 • 1/320 sec. • f/4 • 12–35mm lens (MFT)

Using wide focal lengths up close

An exciting way to get unique photographs up close is to use a wide-angle focal length either on your zoom lens or on a prime (single-focal-length) lens. In [Chapter 2](#), you learned about some ways of getting close with more than just a macro lens. Today, lens manufacturers often allow you to focus very, very close with wide-

angle lenses. Even just a few years ago, this was simply not easily done. I can remember in the days of film trying to find the thinnest possible extension tube to use with a 24mm wide-angle lens so I could focus closer with it. Achromatic close-up lenses were not available.


I made the effort then because wide-angle lenses give such a special view of the world when you are up close. They show off the environment around the subject and encourage you to say something more about your subject than is possible in a simple portrait. Not that a portrait of your subject isn't important—we'll look at that more in the next chapter. But sometimes you can create something that really grabs your viewers' attention by showing them something different—a wide-angle close-up!

Poring Over the Picture

This is a very unusual photo of a ground nesting bee. I had to set my camera on a beanbag right next to the nesting hole, which is seen below and a little to the right of the bee, then wait for the bee to return with pollen for the nest. This is a female that is stocking the nest with pollen for her young—notice the pollen on the back legs. These solitary bees make their nests apart from other bees. This image was shot literally inches from the bee using a very wide-angle lens. These bees are not aggressive and rarely sting, so I didn't worry about photographing her.



ISO 400 • 1/1000 sec. • f/11 • 8mm lens (MFT)



I kept the camera low so that the background and environment would be visible.

Wide-angle lenses up close make the subject big and the background small.

I used a fisheye lens barely inches from the nest hole to get this shot.



No Macro but Often Close

It is extremely difficult to get true macro magnification with a wide-angle up close for a simple reason. You get too close! In order to fill the image area with your subject as you get closer and closer, you have to get physically really close with a wide-angle lens. Remember that the wide-angle lens is showing you a lot more of an area from a particular distance. That means that even when you are super close, you are seeing a lot of your subject and its surroundings. As you get close enough to get a macro or 1:1 magnification, your lens will be almost or even touching the subject, and you and your gear will be keeping any light that is behind you at all off the subject so that the light only comes from the side or behind.

Not only do you have challenges with light, but you can also have problems with actually hitting the subject and nearby objects with your lens (a good reason to use your lens shade so you hit it and not the lens). When you get this close, you also scare away a lot of little insects, and bumping into parts of a plant can make your subject shake.

So with all the troubles, why bother? Simply because you are getting something new and creative in your approach to close-ups. There is no other way to get the look of a wide angle up close than to use a wide angle up close. Any other focal length will give you a different feeling, a different creative impression of your subject. If you want to immediately start getting photos that are unlike anybody else's seen at the camera club, try shooting your wide angle up close ([Figure 5.1](#)).



ISO 200 • 1/160 sec. • f/16 • 8mm lens (MFT)

Figure 5.1 This is definitely not the usual close-up of flowers. These prairie sunflowers were shot with a fisheye lens inches from the flowers.

Surroundings and Environment

In nature, subjects never exist without environment around them. This is why I believe that environment can be so important to nature photography. The surroundings of your subject are important to that subject. They tell a story about where your subject lives, the conditions under which it lives, and even give a sense of place, as

shown in [Figures 5.2](#) and [5.3](#).



ISO 200 • 1/320 sec. • f/4 • 12–35mm lens (MFT)

Figure 5.2 This little alpine buttercup flower and plant is barely a couple of inches high. By including its surroundings and environment, I am helping you understand how big it is and the kind of place it lives in.



ISO 200 • 1/400 sec. • f/11 • 12–35mm lens (MFT)

Figure 5.3 Imagine these poppies and the buttercup shown as macro shots featuring the flowers only. You would have no idea how different the locations are where these flowers grow.

For me, close-up photography is not only about capturing the subject. It is also about connecting with a special part of the world. Why would I be spending time and effort photographing something if I didn't care about it? By looking for photographs of a subject that show the environment and its surroundings as well as trying to do beautiful little portraits that minimize the background (described in the next chapter), I find that this connection is richer and more rewarding.

Now I have to warn you that if you start doing this type of environmental close-up work, you may discover that your first images are not very successful. That's okay. It's a different way of looking and it can take some time to really find your way.

One challenge is that when anyone starts doing something new and different, the rest of the world is not necessarily going to like it. So if you start doing environmental close-ups and no one else in your camera club is doing that, I can guarantee that you will get criticism and all sorts of odd comments that may make you doubt your work.

Being creative is worth the effort. Finding new ways to use your photography effectively is also worth the effort. As you do that, if you find some people who don't like your work, ignore them. Discover

what works best for you, not for them.

Depth of Field for the Wide Shot

Wide-angle focal lengths give more depth of field than telephotos. That is neither good nor bad—it all depends on the subject, the environment, and what you need to emphasize in your composition.

Remember that depth of field is not simply about what is in or out of focus. When objects are ill-defined in the background, they simply become blurry blobs that can add contrast to a sharp subject or an aesthetic and interesting bokeh (the out-of-focus blur in the background of your photograph).

It is true that you will often be able to see a lot more sharpness in the background when you are shooting with a wide-angle lens; however, it isn't always about how sharp something is, but about how well defined it is within the scene.

With wide-angle lenses, even when you are really close, backgrounds are typically defined enough to be recognizable to the viewer of your photograph even when the backgrounds are clearly out of focus. Still, you have the ability to change the emphasis of your image depending on how much depth of field you choose to use. Deep depth of field can be really important if you want to show off the setting and environment of your subject, as seen in [Figure 5.4](#). However, by going for shallow depth of field, you gain a visual emphasis on your subject that cannot be had in any other way, as seen in [Figure 5.5](#).



ISO 200 • 1/125 sec. • f/14 • 12–35mm lens (MFT)

Figure 5.4 These tiny buckwheat plants grow at high elevations in the Ancient Bristlecone Pine Forest of California. A small aperture defines the background well in this image.



ISO 200 • 1/3200 sec. • f/2.8 • 12–35mm lens (MFT)

Figure 5.5 The same flowers now have a totally different emphasis because of the use of the maximum aperture of the lens. The background still has some definition because of the use of a wide-angle focal length.

With my wide-angle lens, I will shoot everything from wide open with the maximum aperture all the way down, to a very small aperture. I want to make the decision of depth of field based on what the photograph needs, not some arbitrary idea of how I have to have deep depth of field with a wide-angle lens.

Challenging Compositions

With wide-angle detail in your close shots, you now have to deal with composition a bit differently than with a totally blurred background. Those details will attract the viewer's eye, so you have to incorporate them deliberately into the composition. And when the detail is fairly sharp, you have to pay strong attention to what is happening between your subject and what is around it in the composition. Relationships are critical.

Composition is how we translate what we see about the world into a photograph. A challenge we always have as photographers is that we see the world differently than the camera does. We see and care about subjects. The camera couldn't care less about subjects. All the camera really cares about is what is dark, what is light, and what color everything is. Beyond that, the camera has no interest.

So here's the challenge. When doing an environmental close-up, it is easy to be very focused on the subject—whatever it is that you want to focus on—and then add its environment. But we can mentally focus so much on that subject that we don't necessarily see everything else that is going on in the photograph. And with environmental close-ups, there is often a lot going on in the rest of the image.

Figure 5.6 is one really good example of this. I was using a fisheye lens up close to a lubber grasshopper in Florida. I was concentrating so much on the grasshopper and putting it into the overall scene that I missed seeing the tripod and power lines at the upper left. I had been photographing with a friend and that was his tripod. The wide-angle lens I used defined details in the environment shown in the background all too well. The lines and tripod that had had no impact on how I saw the critter now became defined enough to be distinct distractions.



ISO 100 • 1/60 sec. • f/11 • 10mm lens (APS-C)

Figure 5.6 It was really cool to be barely inches from a big, mature lubber grasshopper, but that made me focus so much on the critter that I missed problems in the background.

By cropping and using the cloning tool in Photoshop, I was able to clean up the image, as seen in [Figure 5.7](#), but I would have been better off if I had seen the distractions in the first place and avoided them in the shot. I feel it is important to get the shot right as I shoot—I don't have the interest or time to spend a lot of time "fixing" it later.



ISO 100 • 1/60 sec. • f/11 • 10mm lens (APS-C)

Figure 5.7 It took some work to fix this in Photoshop, which would not have been needed if I had paid attention better in the first place.

I know, sometimes things are happening fast in front of your camera and you simply react to get the shot. This could be especially true when photographing a small critter that isn't all that happy with you getting as close as you need to be with a wide-angle lens. That's why it's so important to check your LCD. Look to be sure that the environment around your subject has a good relationship to your subject, i.e., especially that it is not distracting from your subject. Bright colors, bright areas, and distinctive shapes will always attract the viewer's eye away from your subject. Watch out for them in the areas surrounding your subject.

What visually overlaps and what doesn't is an important part of composition for close-up work. Once again, it is easy to get so mentally focused on your subject that you don't see what is happening immediately around it. The overlap problem comes when you have something behind your subject that overlaps it visually in such a way that the two start to merge together.

Figure 5.8 is an example of being careful of overlap. This fern frond was shot to show its woodland environment, but I used a wide aperture to help define it better with shallow depth of field. Still, I made sure the bright frond stayed against the dark tree trunk and did

not overlap into the bright sky nearby. That would have given less emphasis to the fern frond because similar brightnesses of frond and sky would visually tie the subject to that sky.



ISO 200 • 1/1000 sec. • f/3.2 • 12–35mm lens (MFT)

Figure 5.8 By watching for distracting overlaps of the fern frond and its setting, I was able to carefully define the fern in the composition.

LCD Review Time

After you take a photograph, an image will appear on

your LCD. This is called the review image, and the length of time that it is on your screen is called the review time. This review image is a valuable bit of information for you as a photographer.

Unfortunately, camera manufacturers have kept an old standard for review time that is not very useful today. Years ago, it was important to do everything you could to minimize drain on the battery, and review time could add some drain on the battery. Today's cameras and LCD screens are so energy-efficient that this drain is essentially meaningless, yet manufacturers continue to use the old default of just a few seconds for the review time. Go into your camera menu and change this to its maximum (which still isn't a huge time) so that review time actually helps you. Pressing the camera button lightly will immediately turn off the review.

Depth and Space

Wide-angle focal lengths up close definitely change the feeling of space and depth within a photograph. You don't have to have a super wide-angle lens in order to gain some of the effects discussed in this chapter. Any wide-angle focal length will give you some of these effects; even the widest angle you have on your basic wide-to-telephoto zoom will give you these effects.

"Depth and space" within a photograph refer to an impression of distance from subject to its surroundings. When the surroundings look very close to the subject, the feelings of space and depth diminishes. When that distance appears to enlarge, space and depth also give the impression of enlarging.

This is all about perspective and how you control perspective within a photograph. Perspective is important when you are photographing up close, especially when you are linking your subject to its environment. When an object is very close to you, it will appear big and the objects behind it small, even when those objects are identical in size, which gives the impression of more space behind your subject. You can see this when you compare the penguin carvings in [Figures 5.9](#) and [5.10](#). The distance between penguins has not changed, but they sure look like they have moved apart between the two images.



ISO 400 • 1/200 sec. • f/8 • 12–35mm lens (MFT)

Figure 5.9 This Russian toy has penguin figures of equal size. They look similar in size when shot with a slight telephoto (35mm) at a moderate distance. This is a common perspective for close-ups.



ISO 400 • 1/200 sec. • f/8 • 8mm lens (MFT)

Figure 5.10 The relationship of size among the penguins has been changed dramatically by using a wide-angle lens up close.

A wide-angle focal length up close allows you to get very close to an object so that it is big in the frame and objects behind it are much smaller. This gives the effect of stretching out the space behind your subject and changing how you see the scene. The lichens on a granite boulder in Acadia National Park in [Figure 5.11](#) gain visual impact because of the stretching of perspective from near to far through the use of a wide-angle lens.



ISO 200 • 1/200 sec. • f/11 • 14–42mm lens (MFT)

Figure 5.11 These lichens are huge compared to the mountains in the background due to the use of a wide-angle lens up close.

Distance *and* Focal Length

At the risk of being repetitive, I have to emphasize how important it is to get close to your subject as you are using a wide-angle lens. This is not about coming up to your subject and then zooming your lens in and out until you get the composition you want. That will not give you the perspective effects that I am talking about here.

You need to physically move in close to your subject. The closer you are to your subject, the bigger it is compared to the background. And since you're so close, you need a wide-angle lens in order to capture it all. It is not actually the wide-angle lens that is giving the stretched perspective but your use of it while at a very close distance. This effect works when you are using both distance and focal length changes.

Watch Your Light

Light and how you use it are always important to photography. There

is a whole chapter in this book totally devoted to light and the close-up for that reason. But when you photograph up close, you get a unique challenge that you have to consider. The challenge comes from your working distance—how far away you are from your subject as you shoot. With a wide-angle, your working distance is short. That means there is less room for the light to reach the subject.

The result is that you can shade your subject. That might mean even putting a shadow on the subject. Look back at [Figure 5.10](#) and compare it to [Figure 5.9](#). The chest of the lead penguin in [Figure 5.10](#) looks darker because I was so close that I actually blocked some of the light, which was hitting the toy just fine in [Figure 5.9](#).

Here is where you have to remember how easy it can be to focus on the subject and not fully see the photograph. We see easily into shadows, so even if a subject gets a shadow on it, you can still see the subject just fine. For the camera, though, that's a different story. The camera is going to overemphasize the contrast between shadow and light, and that can be a problem.

This can be a sharp shadow that is obvious and distracting, but it can also be simply a darkening of part of the subject that you don't notice, yet will cause problems later. If you are aware of this possibility, you are more likely to see it. Once again, use your LCD to help you identify this challenge.

For these reasons, I often work with side light and backlight for wide-angle close-ups. Either kind of light allows better illumination of the subject because it doesn't have to go through me!

One thing that's really fun to do is to get down low so that the backlit image even includes the sun in the picture. This can be tricky and can cause exposure and flare problems, but it is always worth experimenting with. Stop your lens down to at least $f/11$, be sure the sun is near something that is dark for contrast (that might even be a dark sky), and you can get an interesting sunburst pattern, as seen in [Figure 5.12](#).



ISO 400 • 1/800 sec. • f/11 • 8mm lens (MFT)

Figure 5.12 The obvious backlight here means shadows fall toward the camera. The sun gets a sunburst pattern from a small aperture with a wide-angle lens. Notice how this clump of poppies changes in height and space due to the perspective of a wide-angle up close.

Chapter 5 Assignments

Do wide-angle trials

This is a variation of an assignment from [Chapter 2](#) that will help you work with wide-angles up close. Go through your lenses and find your widest focal length. This might be on a zoom. Put that lens on your camera, set the lens to that wide focal length, then put your camera and lens on manual focus and set the lens to its closest focusing distance. Now go out and spend some time shooting at least 20 pictures without changing from that wide-angle setting or the close focus distance. Move in until your subject looks sharp, then take the picture.

Play with environment

Now take your wide-angle lens and go out and find a subject with an interesting environment. Don't worry if this isn't some beautiful,

outstanding environment. This exercise will even work well when a dandelion grows up through the cracks of a sidewalk and the background is a city environment. See how you can integrate that environment into the photograph while still emphasizing your subject. That can be challenging, but is the type of exercise that will help you learn to achieve that integration.

Try out wide-angle depth of field

Wide-angle depth of field up close can be very weird at first—it's just not the way you expect depth of field to act. Get that wide-angle lens out again and try some experiments as you photograph a subject with a distinct background. Try shooting with your lens wide open, i.e., using its maximum aperture, then try it at one of the smaller f-stops, such as f/16. You can even try some in-between f-stops just to see what happens with wide-angle depth of field.

Go for deep detail, part 2

In the last chapter, I gave you an assignment that said “go for deep detail,” and now I want you to try that again, but this time with your wide-angle focal length. Stop your lens way down to f/16 or even try f/22. Then, without changing that f-stop, go out and photograph a lot of subjects up close at your wide setting and see what you can do with deep, deep depth of field. Pay attention to that background and see how it is affecting where you look within the picture. Look for distractions that now show up because of this deep detail.

Explore the magic of wide-angle backlight

I have found that a lot of photographers get concerned about shooting with backlight, especially when they're shooting right into the sun. When you're using a very wide-angle lens, often backlight means you are indeed shooting right into the sun. With this exercise, I want you to deliberately do that. Just try it. Be aware that some pictures you won't like, but some you'll get very excited about. The only way to really explore the wonderful things that can happen with backlight and wide-angle lenses is to just do it. Shoot at least 20 exposures where backlight is your only way of dealing with your wide-angle close-up.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

6. Isolation Focal Lengths



ISO 200 • 1/15 sec. • f/4 • 50–200mm lens (MFT)

Using telephoto focal lengths for macro shooting

If I had to work with just two lenses for close work, I would choose a wide-angle and a telephoto. From reading [Chapter 2](#), you are probably not surprised that I would not automatically include a macro. Not that I don't like and use a macro (I do!), but if I had this limitation of two lenses, a macro would not be enough for me. As you learned in the

last chapter, a wide-angle lens offers you the chance to connect your subject to its environment.

In this chapter, we'll look at telephoto lenses (which include the telephoto end of a wide-to-tele zoom) and what they can do for us as close-up and macro photographers. Telephotos make it easy to isolate our subjects and make them really stand out from the background. A telephoto can create a true portrait perspective on your subject as well as limit the detail of what appears behind your subject.

Poring Over the Picture

In the last chapter, you saw a ground-nesting bee (often called a digger bee) within its unique environment. Here you see a totally different bee—a bumblebee, peeking over the edge of a prairie sunflower; there is no environment. This bumblebee was shot in a southwest Missouri prairie. Here, I used a 50–200mm lens set to 200mm (a long focal length equivalent to 400mm for 35mm) and attached it to a short extension tube. This combination allowed me to focus in and create a unique, isolated shot of the bee. There is no confusing the bee with the background here.



ISO 400 • 1/800 sec. • f/8 • 50–200mm lens (MFT)

The telephoto lens also provided very shallow depth of field, which clearly isolated the bee and flower against the background.





Macro and Close

Moderate telephoto focal lengths, i.e., those that give a gentle telephoto effect (such as 100mm for 35mm full-frame or 60mm for MFT), work very well at macro distances. The most popular macro lenses are typically in the moderate telephoto focal length range. Moderate telephotos don't get you physically too close to your subject nor too far away.

But as your telephotos increase in strength, that is, their focal length gets longer, you need increasingly more extension to move the optics away from the sensor to allow them to focus closer. This either means an increased distance built into the focusing mechanism of the camera

lens (either real or virtual due to additional optics) or larger sets of extension tubes.

Achromatic close-up lenses give you stronger close-up focusing effects than you get when used with a wide-angle lens. That is actually due to how the optics of an add-on lens work with the lens, and you can use this to your advantage. Sometimes it is much easier to use an achromatic close-up lens with a long telephoto focal length simply because you can get very close with such an attachment and you don't have to deal with an unwieldy lens that got extra long because you had to use lots of extension tubes.

Regardless of how you do it, adding telephoto focal lengths to your close-up gear possibilities will definitely open up your options for close work, as shown in **Figure 6.1**.



ISO 400 • 1/1600 sec. • f/2.8 • 40–150mm lens (MFT)

Figure 6.1 A strong telephoto focal length brought a shy swallowtail butterfly visually closer without having to be right up next to the flowers.

A Reminder About Sharpness

Telephoto focal lengths are always sensitive to camera movement, and up close, this just gets worse. Any little bounce or vibration during the shot will show up and make the photo less sharp at best, totally blurry at

worst. In addition, handholding a larger, heavier lens while moving around looking for your shot will wear on you and make it harder to keep the camera still. For these reasons, I typically use either a monopod or a tripod when shooting close-ups with a telephoto. That does not mean I always do, but if I can't use one of those supports, I make sure I am using a very fast shutter speed.

Flower Portraits

In [Chapter 10](#), I will talk about working with specific subjects and offer some ideas on how you can get better images of them. However, the flower portrait is such a perfect example of using telephotos up close that I am going to talk specifically about flowers and a portrait look here.

Typically, we associate portraits with photographs of people. Those are images that emphasize the subject over anything else, make it clear as to what we are supposed to look at, generally have a simple background, and feature the person as not just the focus of the picture, but as the main part of the composition.

That's exactly what we will look for in flower portraits: an image that clearly emphasizes the flower, has a simple background, and is composed around the flower so that it dominates the image. That's what is happening in [Figure 6.2](#). Notice how the flower truly dominates the image. There is no connection to an environment here.



ISO 200 • 1/30 sec. • f/5.6 • 300mm lens (MFT)

Figure 6.2 A primrose willow flower gains a nice-looking portrait from the use of a long telephoto lens that emphasizes the flower against a simple background.

A telephoto narrows the angle of view on the scene that the camera is seeing from a given position. This then narrows the angle of view on the background so that there is not as much showing behind your subject. That immediately simplifies the background. Because telephotos also have less depth of field, that also simplifies the background. Telephotos also encourage you to compose tightly on the subject, which then emphasizes the flower in the image.

Because flowers are usually lower than we are, there's a tendency for photographers to shoot down on the flowers. It's common when photographing a flower to shoot at a 45-degree downward angle. That is often not the best angle for a flower portrait. Get down to the flower's level, as seen in [Figure 6.3](#). This will give the flower a stature and a visual strength that you don't get when shooting down on it. In addition, this will usually give you more options for what the background looks like.



ISO 200 • 1/1000 sec. • f/2.8 • 60mm lens (MFT)

Figure 6.3 A moderate telephoto at “eye level” with this bush snapdragon creates a nice portrait of the flower cluster.

Shallow Depth of Field

Unlike the wide-angle lens, the telephoto immediately gives less depth of field. The longer the focal length of your telephoto, the less depth of field you are going to get. You cannot change this basic optical attribute of focal length.

This shallow depth of field is not necessarily something to be afraid of. In fact, by using a wide f-stop with your telephoto to totally limit depth of field, you can often get a wonderful contrast between a sharp subject and a totally out-of-focus background, a look that cannot be achieved in any other way.

Sometimes, you will want to stop your lens down to get more depth of field on your subject. This can work while still keeping an out-of-focus background because depth of field is always so shallow with telephoto lenses up close.

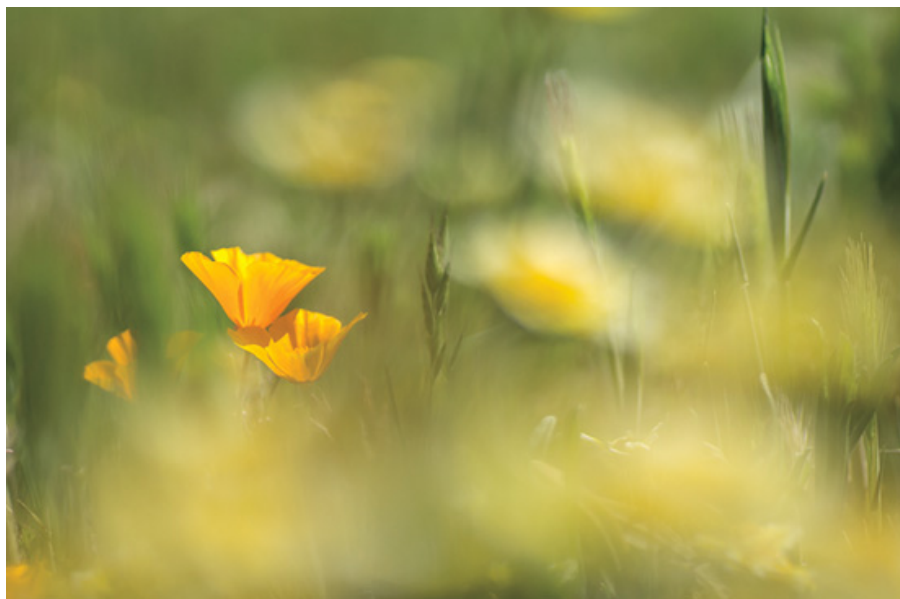
With a telephoto lens, you may find that there is nothing in the background that is really recognizable, compared to what you would get with a wide-angle lens. However, the shapes and forms of the background do change even as you change from f-stop to f-stop. Sometimes those shapes and forms are wonderful and accentuate the picture, but they can also be distracting, so you do have to pay attention to what's going on behind your subject even though stuff is out of focus, as shown in [Figure 6.4](#).



ISO 200 • 1/125 sec. • f/5.6 • 16–80mm lens (APS-C)

Figure 6.4 The background behind these immature lubber grasshoppers has no discernable objects now because of a telephoto lens (80mm) and a wide aperture used up very close.

One great technique to use when you are dealing with limited depth of field is selective focus. This happens when you focus in on something within a scene filled with details, such as one flower in a group of other plants. Make sure that your subject is sharp, and then the things around it are out of focus, as seen in [Figure 6.5](#). This can be a beautiful effect to use when working with subjects like flowers where you have some interesting out-of-focus colors in your photograph.



ISO 100 • 1/3200 sec. • f/2.8 • 100mm lens (APS-C)

Figure 6.5 A group of poppies are carefully selected through shallow depth of field, which creates a wonderful effect of out-of-focus color and form.

Parallel Focus

There is a cool little technique that you can use to get more things sharp in your picture without having deep depth of field. Your focus point occurs as a plane going through your scene, a plane that is parallel to the back of your camera. Things that are in front of or behind that plane are out of focus. However, everything that is in that plane, which means things that are directly to the sides or above or

below your point of focus, will also be sharp.

This plane of focus is parallel to the back of your camera so that if you tilt your camera, you also are tilting your plane of focus to match, as shown in [Figure 6.6](#). Use that information to help you tilt your camera parallel to your subject to keep more of it in focus. Just remember that if the back of your camera is lined up along the same parallel plane as your subject, your plane of focus will go through more of the important parts of your subject. This is exactly what I did for the grasshoppers in [Figure 6.4](#).

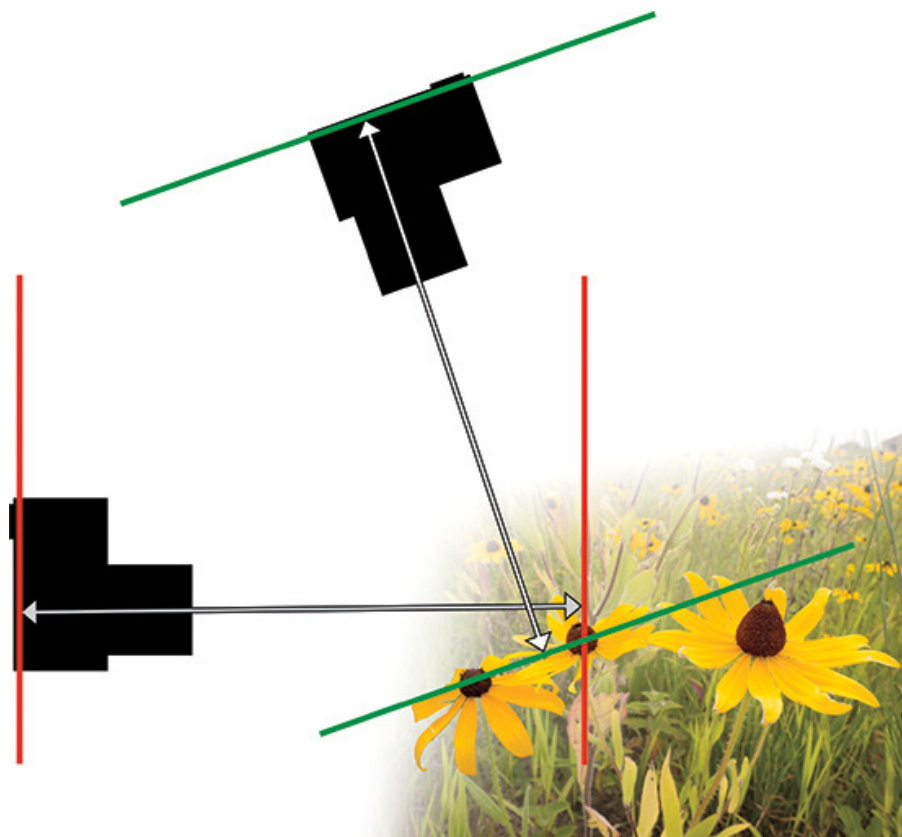


Figure 6.6 As you move and tilt your camera in relation to the subject, the plane of focus also tilts parallel to the back of your camera.

This also means that you can be more selective in what is in and out of focus by controlling how this plane intersects the subject and the scene.

The plane of focus can be a problem at times if you are picking up things along your edges that are sharp so that they become distractions. What can happen is that you mentally focus on the strong contrast of sharpness between your subject and the background so

that you don't see that the plane of focus has allowed sharp, distracting objects to appear along the edges of your composition. Check your LCD to be sure that doesn't happen.

Tilt-Shift Lenses

Several manufacturers make tilt-shift lenses that can change how the plane of focus goes through your subject. By tilting the lens, you also tilt the plane of focus so that it is no longer parallel to the back of the camera. Up close, that can allow you to make more of your subject sharp in depth without needing a smaller aperture. These lenses focus fairly close, but you will need extension tubes or other close-focusing accessories for serious close-up work. Tilt-shift lenses are expensive and add quite a bit of bulk and weight to your gear. I have used them, but their price and size have made it not worth it to have one in my bag.

Pick Your Background

Telephotos give you a unique opportunity to change your background in ways that you cannot do with wider focal lengths. This option even becomes stronger as you use longer focal lengths. I am talking about literally choosing what is behind your subject.

Here's what happens. When you use a telephoto lens, you have a narrower angle of view of what you see of the scene in front of you. With a telephoto lens, you're going to have to back up to get your subject framed properly in your viewfinder. Backing up, however, does not change the angle of view on your background. You're still seeing only a relatively small part of that background.

Figure 6.7 demonstrates this. The top part shows a camera with a telephoto lens—the camera is backed away from the subject and the angle of view on the background is narrow. The bottom part shows the effect of a wide-angle. Now the camera is very close to the subject and the angle of view on the background is very wide.

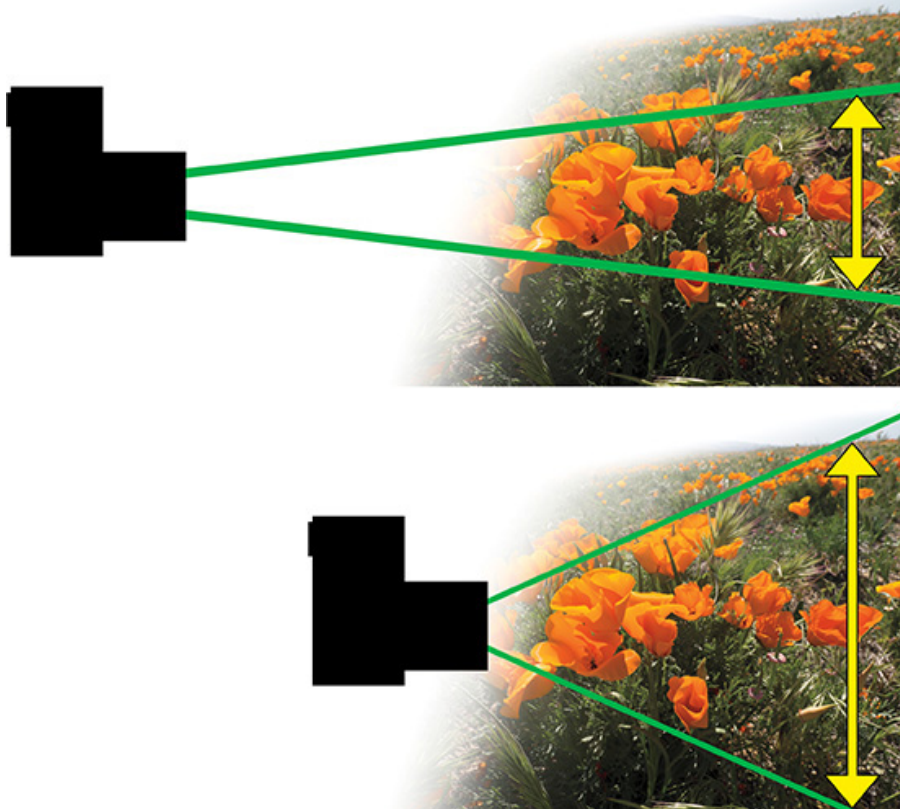


Figure 6.7 The top camera and scene show the effect of a telephoto on background, while the bottom shows wide-angle.

The result is that if you change your physical angle to your subject, you immediately see a new little slice of background. This is totally different than working with a wide-angle lens up close. With a wide-angle focal length, you can change your angle to the subject quite a bit and still keep basically the same background because that lens is giving you such a large angle of view. With the telephoto, you can aim toward specific parts of your background to use behind your subject simply by changing your angle to the subject, as shown in [Figure 6.8](#).



ISO 200 • 1/4000 sec. • f/3.2 • 60mm lens (MFT)

Figure 6.8 This series of photos highlights the same main cream cups flower, but by using a telephoto and changing my angle to the flowers, the background changes with small changes in camera position.

Soft Backgrounds

With their very shallow depth of field, telephoto focal lengths can do some wonderful things to a background. The bokeh, or out-of-focus, look of the background will often have no discernable connection to reality other than color and light.

This is such a beautiful effect and comes only when the background is totally blurred, as shown in [Figure 6.9](#). I did stop the lens down to f/8 to gain some slight depth of field for the dragonfly's body. However, the depth of field is so shallow due to the use of a strong telephoto lens (200mm, which is equivalent to 400mm in 35mm) that the details of the background blend together into shades of green.



ISO 200 • 1/320 sec. • f/8 • 50–200mm lens (MFT)

Figure 6.9 The background behind this dragonfly is totally filled with lots of leaves, but they all blend into a soft, gentle coloring because of a strong telephoto lens.

The farther the background is away from your subject, meaning as far behind your subject as possible, the more out of focus it will be. In [Figure 6.9](#) I deliberately kept my camera relatively low to the subject so that the background would be farther away.

Always remember that the three key things that affect sharpness within your image also affect the sharpness or lack of sharpness in your background: f-stop, focal length, and distance. So when the distance to your subject is very close, as it is with close-up work, depth of field is very shallow, and then when the distance to the background is far, that means that depth-of-field sharpness there cannot happen.

Isolation and Emphasis

A telephoto lens can help isolate your subject within the composition. Isolation gives emphasis to your subject and helps your viewer clearly see and identify what is important in your photograph. Emphasis is a critical part of any composition. All of the things that I've been talking about in this chapter really do help create this isolation/emphasis effect.

Shallow depth of field is a big part of this. Since telephoto lenses give

you such a shallow depth of field, you can create a very strong contrast of sharpness between what is sharp in your picture—your subject—and everything else. That contrast isolates and emphasizes your subject.

As described earlier in the chapter, another important telephoto effect is being able to control how much of your background shows up behind your subject. So a small bit of shadow in the background could provide a good contrast for your subject, but you may find using only a small bit is impossible with a wide-angle lens. But with the telephoto, you can frame up your subject against that dark part of the background so that it stands out dramatically isolated from the rest of the image.

Or you might go for something completely different and look for something bright in the background. In [Figure 6.10](#), you see a jewelweed flower emphasized against a bright part of the background. I was shooting with a moderate telephoto lens that helped me feature parts of the background against the flower. By moving around and using a wide-open aperture, I created this interesting effect in the background where the out-of-focus highlights, or bokeh, show as these lovely shapes. None of the leaves or the light in the background is focused in any way—it is simply an interesting background that creates emphasis within the photograph.



ISO 200 • 1/50 sec. • f/2.8 • 60mm lens (MFT)

Figure 6.10 This jewelweed flower gains emphasis when I am

careful about placement of the bright out-of-focus areas of the background behind it.

Perspective

A telephoto increases the impression of things coming closer together. Remember, however, that this is not simply a factor of the focal length used, but it is about the distance you are from your subject along with the focal length used. In other words, if you are farther away from your subject and want to keep it the same size, you use a telephoto lens. That also brings the background in closer to your subject as well. Okay, it doesn't physically move the background closer, but it definitely makes it look closer.

This allows you to affect how objects appear within your close-up composition. You can make flowers look closer together or farther apart depending on the focal length and distance used. This is not just about using a wide-angle versus a telephoto lens. If you have a telephoto zoom, for example, you will have the perceived distance between your close objects change when you move closer with the wider focal length or farther away with the telephoto focal length. Here is where you can use the same identical zoom lens and change the appearance of your subject matter.

I use this all the time with photographs of groups of things, such as flowers. By backing up from those flowers and using a telephoto lens, I can make them look tightly packed and close together—a compression effect. I also do this to bring a background closer to the subject, such as in [Figure 6.11](#). The mountains in the background of this shot are about twenty miles away and would be small in the shot with most lenses. By using a long telephoto (200mm for MFT), I was able to magnify the mountains in the background. This meant I had to back up in order to get the close shot of flowers I wanted (also compressed together because of the distance and focal length).



ISO 200 • 1/200 sec. • f/16 • 50–200mm lens (MFT)

Figure 6.11 A long focal length and backing up allowed me to connect the poppies to the mountains in the distance due to the compression effects of a telephoto plus distance.

That connection of flowers to mountains might seem counter-intuitive based on what we discussed in the last chapter. Actually, what you are seeing here is not the actual environment of the flowers—they do not grow in the mountains. What the compression of distance is doing is creating a geographical connection of the flowers to a place—they do live in the plains below the mountains.

Working Distance

One thing telephotos allow you to do is back up from your subject, putting distance or space between you and it. This working distance makes it easier to get light on your subject. Now you can photograph from almost any angle and still get light on your subject. Using a wide-angle lens up close can make it difficult to use anything except back and sidelight on your subject.

Now, with a telephoto focal length, the longer the focal length used, the farther back you are from your subject. This allows light to reach the subject from all sorts of angles. A low front light can be a very interesting light early and late in the day, a light that is impossible to use with wide-angle lenses, but becomes possible when you start using a telephoto. This simply gives you more options for light.

This distance also gives you some space between you and your subject. This can be important with wary subjects, such as butterflies and dragonflies. Very often these insects will not allow you to get very close. In fact, I have seen grasshoppers move to the far side of the stem of a plant even when I was as far away as 10 feet. By using a telephoto lens for your close-up work, you can often get shots of shy little critters that would not allow a closer approach.

Having some space between you and your subject can also be important when you are photographing animals that could be dangerous ([Figure 6.12](#)). You certainly don't want to get too close to something like a rattlesnake or bees if you are allergic to their sting. A telephoto gives you the distance you need to get the shots without being threatened.



ISO 200 • 1/320 sec. • f/5.6 • 50–200mm lens (MFT)

Figure 6.12 By using a strong telephoto focal length, I could photograph this rattlesnake sunning itself in the early light and stay at a distance from it.

Chapter 6 Assignments

Do telephoto trials

Look through your lenses and find your longest focal length. This might be on a zoom. Put that lens on your camera, set the lens to that

most-telephoto focal length, then put your camera and lens on manual focus and set the lens to its closest focusing distance. Now go out and spend some time shooting at least 20 pictures without changing from that telephoto setting or the close focus distance. Move until your subject looks sharp (you may have to back up from normal expectations of close-up work), then take the picture.

Check out changing backgrounds

Now take your telephoto lens and set it to its widest, or maximum, aperture, such as $f/2.8$, $f/4$, or even $f/5.6$. Find an interesting subject with different things in the background. Try shooting that subject from different angles to see how you can change that background color and tonality. The wide f -stop will keep it soft.

Try out telephoto shallow depth of field

Telephoto depth of field up close is very shallow. Try some experiments with your most telephoto focal length and your widest aperture. Photograph a variety of subjects with distinct backgrounds behind them and just see what happens. Try shooting with your camera and lens kept low so that the background stays farther away from your subject, and therefore, has more potential to be more out of focus.

Explore perspective

This assignment works well if you have a telephoto zoom, but any two significantly different focal lengths will work. With a telephoto zoom, set your zoom to its widest telephoto setting (shortest focal length, such as 70mm for a 70–200mm zoom) and its closest focusing distance, then move in to a subject that looks good up close. Find a subject that has a strong background. Take the picture. Next, notice how big the subject is in the photo on your LCD playback. Now set your zoom to its most telephoto setting (longest focal length, such as 200mm for a 70–200mm zoom) and then back up until the subject is about the same size in your photo as it was for the wider focal length (this is not about zooming in and out from the same spot). Focus on the subject and take the picture. Compare what happens to the background and the perspective relationship from subject to background.

Explore the magic of telephoto isolation

Use your longest focal length again. Put your camera and lens on

manual focus and set the lens to its closest focusing distance and choose your widest aperture. Now go out and spend some time shooting at least 20 pictures, looking for ways you can isolate a subject from busy and detailed surroundings. Try different angles, even shooting through out-of-focus objects between you and the subject. Use your LCD to confirm that you are isolating your subject and giving it strong emphasis in the photo.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

7. Light on the Close-Up



ISO 400 • 1/1000 sec. • f/4 • 200mm lens (MFT)

Great possibilities for light up close

Light is basic to all photography, but up close, things change. As noted in [Chapter 5](#), light can be a challenge for wide-angle close-ups, which can restrict the light you can use. In that sense, light up close can be a problem.

But in another way, light up close gives you more possibilities than

you could ever have with bigger subjects. If you are photographing wildlife, say a moose, and the moose is not getting the right light, there is not much you can do. You can't move the moose to better light, nor can you easily move around the moose to find an angle with better light. The same could be said about photographing a mountain.

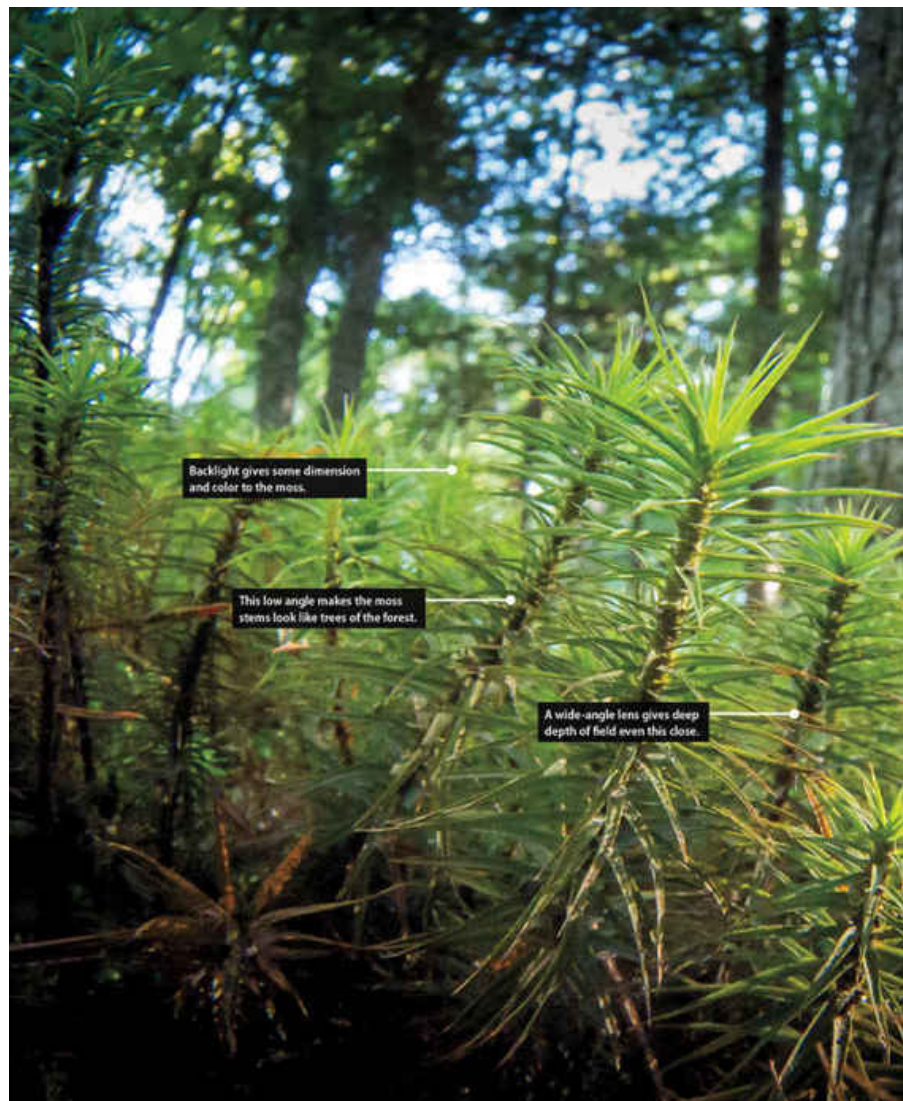
Up close, you can do both. You can bend a flower into better light or catch a ladybug and put it onto a stem with better light. You can move around a flower cluster to get the best light, getting front light, sidelight and backlight all on the same subject, all at the same time, simply by moving.

Poring Over the Picture

I wanted to create an image of this particular moss that gave it a feeling of being part of the forest itself. My camera with fisheye lens was literally on the ground and I used my swivel LCD to view the shot. There was a good backlight from a shaft of light on this particular clump of moss, plus when I moved a little, I got a nice sunburst pattern of the light coming through the trees.



ISO 1600 • 1/8 sec. • f/8 • 8mm lens (MFT)



Backlight gives some dimension and color to the moss.

This low angle makes the moss stems look like trees of the forest.

A wide-angle lens gives deep depth of field even this close.



We Don't Always See the Light

Even though photography is all about light, I find that light can trip up many photographers on the way to better close-up and macro photography. The problem comes from the difference in the way that we and the camera see the world. We see subjects. We evolved to distinguish objects (subjects) in all sorts of conditions so we could hunt for food and avoid being hunted ourselves.

Seeing a subject is great fun when that subject is a cool little insect or a beautifully formed flower that we are focusing on with our camera. The act of focusing on that subject even intensifies our connection with the subject.

The problem is that the camera could not care less about subjects. It only sees light and the effects of light on the world. Yet we are so focused on the subject that we often don't see the light. Our eyes are capable of seeing the subject just fine in both sun and shade and in any other light. An exciting close-up subject can totally grab our brains so we don't see anything but that subject.

We can quickly get into trouble when that is all we see, and we miss the light and shadow that the camera is actually seeing. That may mean the subject, which we saw just fine, changes and even disappears in the photograph because of the way the camera sees the light.

You can really notice this in [Figure 7.1](#). I could see the butterfly just fine, but the light is causing all sorts of problems for the photo—the bright light on the flowers at the bottom are a distinct distraction from the subject; the wing at the right is very similar in tone and pattern to the background, so it starts to blend in; the bottom of the abdomen of the insect is the same tone as the shadow behind it; and the light on the out-of-focus flower at the top creates distracting detail.



ISO 200 • 1/2000 sec. • f/4.5 • 40-150mm lens (MFT)

Figure 7.1 The light makes the subject less distinct in this photo even though you would have seen the subject just fine in real life.

This changes completely in [Figure 7.2](#) because of the light. I could see

the butterfly just fine, *and* the light was working with the camera to effectively highlight the butterfly. The backlight made the wings bright against a darker background and made the flower stalk dark against the background.



ISO 200 • 1/320 sec. • f/8 • 40-150mm lens (MFT)

Figure 7.2 The light makes the subject show up well in this photo.

Seeing Light as the Sensor Sees It

One reason I quite like Live View is that because you are seeing the light the sensor sees and not the “real world” subject, your eye sees through an optical viewfinder. Mirrorless cameras like my GH3 take this one step further because the viewfinder is an electronic viewfinder that shows what the sensor sees (“Live View” in the viewfinder). It can actually be a little disconcerting at first when using Live View (and especially an electronic viewfinder) because what you see there seems “different” than what you saw in an optical viewfinder. That’s because it is! Live View shows you much more accurately what the actual photo will look like.

Light Interactions

According to physicists, technically we cannot actually see light, only the effects of light. Light going through a vacuum cannot be seen. It can only be seen when it interacts with something, such as air, a rock, a spider, a flower, etc.

That turns out to be quite important. Effectively using light in a photograph is then not truly about “seeing the light,” but about seeing how light interacts with the world and how the camera deals with that interaction (though “seeing the light” is a lot easier to say!). As soon as you take the attitude of looking for light interactions, you will be surprised how much more you see of light and its effects.

While this is about awareness of light and its interactions, the subject is still important, and often in nature photography, the subject is very important. That doesn’t change the idea that the camera could not care less about a subject, but when we start looking for interactions of light on our subject and everything else within the image area, we start expanding our ability to see better photographs, as shown in

Figure 7.3.



ISO 200 • 1/500 sec. • f/10 • 50-200mm lens (MFT)

Figure 7.3 The interaction of light on this elderberry flower cluster gives it form and texture.

Light can be described in several ways. One is based on direction as it hits the subject relative to the camera position: Front light hits the front of the subject as seen by the camera; sidelight strikes the side of the subject; and backlight hits the subject from behind.

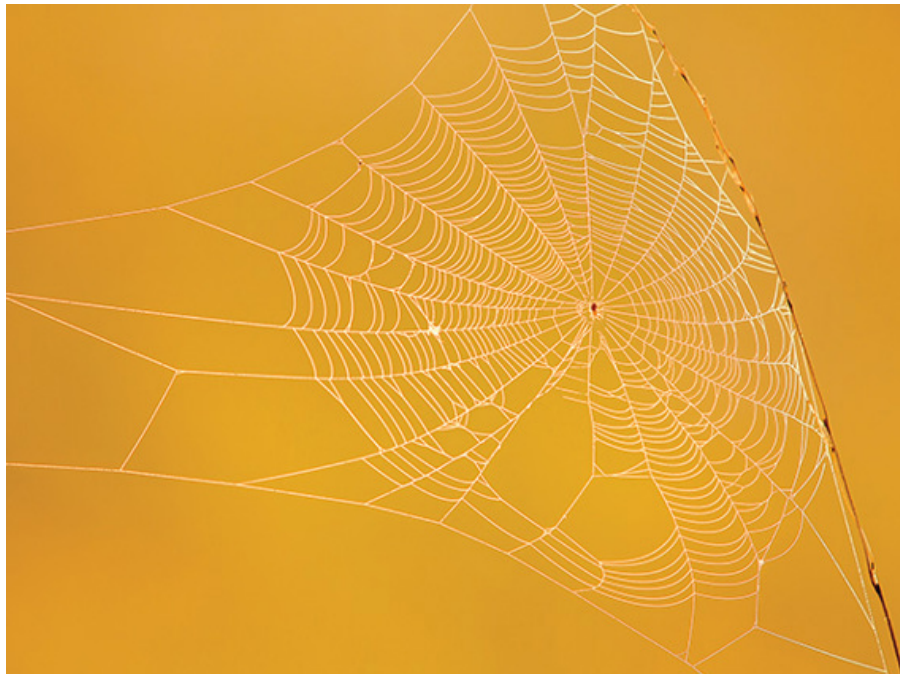
Another way of looking at light is how specular or diffuse it is: Specular light comes from a point source, such as the sun on a clear day, and puts sharply edged shadows on the subject where light and shadow meet; diffuse light comes from a big area of light, such as the clouds on a cloudy day, and shadows soften and even disappear as the light becomes more diffuse.

Separation Light

Light that separates your subject from the background is a key light interaction for close-up work. Often there is a lot of stuff around your subject that can make it hard to see within the photo, so helping your viewer to quickly and readily see that cool subject you found is very important.

Light helps separate the subject and the background (and other elements in the image from each other) by creating contrast along the edges of these pictorial elements so that they are lighter or darker than other elements nearby. It is the difference in brightness that is important. The stronger the contrast of that difference, the stronger the separation.

A very good light for separation is backlight, as seen in [Figure 7.4](#). There it makes the spider web a bright, glowing pictorial element that strongly contrasts with the background. Backlight can create a brightness or rim of light along the top or sides of your subject that can contrast with a dark background. Dark backgrounds are often easier to find with backlight as well because this light tends to throw a lot of shadows toward the camera.



ISO 200 • 1/250 sec. • f/4 • 40-150mm lens (MFT)

Figure 7.4 A low backlight from an early morning sun makes this spider web glow with light and clearly contrast with the background.

An interesting thing about backlight is that it does not have to be bright and bold in order to be effective. Even a gentle backlight will create some separation within the photograph.

You can also look for any type of light that creates brightness on your subject and shadow in the background or shadow on your subject and brightness in the background ([Figure 7.5](#)). Either of those types of lights will give you separation between subject and background.



ISO 200 • 1/2000 sec. • f/4 • 40-150mm lens (MFT)

Figure 7.5 This little skipper butterfly shows up clearly because the background is getting a much brighter light than the light striking the skipper.

Dramatic Light

Light can be quite dramatic as it interacts with the subject and surroundings. Backlight is almost always dramatic because of its strong and bold contrast. Many photographers are afraid of backlight and just for that reason, backlight becomes dramatic and adds impact to your pictures. It simply is a light that other photographers are less willing to use.

Any time that you can find contrasty light that is not harsh and unattractive, you will likely have dramatic light. You do have to be careful that the contrast of the light does not overpower your photograph.

One way that a high-contrast light can be used is with a spotlight effect. A spotlight effect happens when a bright light is on your subject and the rest of the picture is dark. Once again, you have to look at the interaction of the light with your entire scene as it is being photographed. If you have a nice spotlight on your subject, but you also have spots of light in the background, those background spotlights are going to be distracting.

In [Figure 7.6](#), you see a very dramatic spotlight on a pepperweed flower. By being aware of the possibilities of dramatic light (and spotlight in particular), I was able to spot this flower growing under a tree in a spot of sunlight. The tree shaded the area around the flower, creating a strong contrast in light from sun to shade.



ISO 400 • 1/100 sec. • f/10 • 60mm lens (MFT)

Figure 7.6 A sunlit flower surrounded by shade allowed me to find this dramatic light interaction with flower and darkness.

The Dominance of Bright Light

Whenever you have a contrast of a bright area with a dark area, you have what is called a tonal contrast. Light is a very important way of creating a tonal contrast because you can use light and shadow to create it. Tonal contrasts are the most dominant of any contrast. This is why it is so important to watch what is happening to light throughout your image area. If light makes one area very bright that is away from your subject, that will always attract the viewer's eye away from your subject because of the dominance of bright light.

Gentle Light

Sort of the opposite of dramatic light is gentle or soft light. Gentle light does not have to be boring and uninteresting, however. Gentle light simply means that there are not strong contrasts and sharp edges between light and shadow. Light in the shade or on a cloudy day can give you very gentle light on your close-up. You can get a range of gentle light depending on how strong the clouds are in the sky.

While we can see into the shadow just as well as into the lit areas of a contrasty day, the camera can't (that shows up well in [Figure 7.6](#)). However, the camera easily sees throughout an image with gentle light, where the difference between light and shadow is not so great. This can be very important if you're trying to show off a range of detail throughout your subject. Harsher light, such as a dramatic light, can certainly be bold and effective, but that can also mean that it is difficult to see everything that is going on about your subject. When you need to show a range of color and pattern throughout your subject, gentle light will often be the best light to use.

The details and patterns of a labyrinth spider and her protective lair in the middle of her web show up well in the gentle light shown in [Figure 7.7](#). This soft light came from a light cloud cover that had spread out the light across the sky. While there were shadows to help define the shape and texture of the spider and her lair, the edge between bright areas and shadow areas was soft and the contrast low so that it is very easy to see the pattern and detail throughout the subject.



ISO 200 • 1/500 sec. • f/11 • 60mm lens (MFT)

Figure 7.7 A soft sunlight illuminates this spider and her home in a gentle way to show off patterns and textures.

Dimensional Light

The shape or form of many close-up subjects is both important and interesting. Very often, we want to show off the dimensional qualities of the subject, such as giving form to a flower or volume to an insect. Light can definitely be used to emphasize the dimensional form of any

close subject.

We see three-dimensional forms because of a contrast and brightness of one side of the object to the other. If something has three dimensions, it will interact with the light differently on each side. Both strong and gentle shadows can create dimension, so you can use many types of light to do this.

Basically, you have to be aware that the light is creating form. Then you can simply move around your subject until you see the form and shape of the subject really being revealed. Watch the highlights and watch the shadows. See what happens.

In **Figure 7.8**, a soft light helps create dimension and form for these Douglas fir seed cones. Notice how the brighter light coming from above contrasts with the shadows underneath the scales of the seed cones to give them a very distinct shape and three-dimensional quality.



ISO 200 • 1/320 sec. • f/4.5 • 50-200mm lens (MFT)

Figure 7.8 Both the cones and the needles of this Douglas fir gain volume and density because of dimensional light.

Create Your Light Interactions

Because close subjects are small, you can easily create and define the interaction of light with your subject. You don't need any new equipment or anything fancy

other than being able to move. Look at your subject and see what the light is doing to it, then move around your subject and see how the light changes. You can get many different types of light on your subject simply by moving around it.

Textural Light

Texture can be a very important part of a close-up subject. Sometimes the texture is key to the subject itself and sometimes the texture itself can be the photograph. At macro distances especially, textures can be extremely interesting and unique.

Light can help show off texture, but it can also obscure it and make it less noticeable. Texture needs light and shadow in order to be visible. Texture is based on the roughness of a surface, on small variations in height on that surface. In order for those small variations in height to become visible, they need to have the contrast of part of them in light and part of them in shadow. This is sort of like dimensional light in a very small context.

Textures really show up well with sidelight, and the stronger the sidelight is, the more visible the texture, as seen in [Figure 7.9](#). If the light is just skimming the surface of an object, the texture will appear very strongly. This is great for close-up work because it means that even though you get really close to your subject, you rarely put your shadow on the subject itself. Backlight can also make textures show up well depending on how high or low it is in relationship to the surface.



ISO 200 • 1/400 sec. • f/14 • 12-35mm lens (MFT)

Figure 7.9 A strong sidelight brings out the varied textures in the wood of this ancient bristlecone pine tree.

Pattern Light

Pattern is very similar visually to texture. In fact, many textures create strong patterns, such as seen in the previous image, [Figure 7.9](#).

Texture comes from the roughness of a surface; pattern comes from changes in tonality and color on the subject itself.

There is a big difference between texture and pattern in the way that they react to light. Sidelight will not help pattern show up. In fact, sidelight can cause a problem with pattern because it will emphasize texture over any color or tonal pattern of the subject itself.

Light has to hit the subject directly in order to illuminate a pattern so that it shows up. Any strong shadows going across a patterned subject will reduce the appearance of the pattern and make it harder to see.

Soft, gentle light can work very well with patterns because such light creates soft shadows that don't take over the subject, as shown by

[Figure 7.10](#).



ISO 800 • 1/400 sec. • f/8 • 60mm lens (MFT)

Figure 7.10 A soft light from a bright, cloudy sky minimizes shadows and helps the pattern of this green sweat bee show up nicely.

Light that hits the front of your subject will also help pattern show up. This could be a challenge because frontal light can be a dull and boring light if you are not careful. If the pattern is strong and clear, then this frontal light is not an issue. Also, a very low frontal light from early or late in the day can be quite effective.

The problem with any sort of frontal light is that it will be coming from behind you. With close-up work you are very close to your subject, so that often means you will throw a shadow on your subject, which obviously changes the light. This kind of light can be extremely difficult to use with wider angle focal lenses. Telephoto lenses help a lot because they allow you to back up from your subject, putting more working distance there, allowing the light to come in to one side of you to strike the subject.

Translucent Light

Many natural close-up subjects have some translucence to them. Flowers and leaves will glow with color in the right light. Hairy stems and fuzzy insects gain more prominence for these features when the light favors them.

Translucent light is almost entirely backlight. The strongest and most dramatic translucent effects come from a bright sun, a specular light source. However, you can get translucent effects by putting translucent objects against anything that is brighter than they are, including a bright sky or any sort of reflected light.

Colors are strongly affected by light that comes through them. Because you're often working with backlight, you also often have dark shadows to contrast with the bright light coming through the flower, insect, or other subject. You do have to be careful to be sure that the bright translucent areas are exposed as bright but not washed out. Sometimes the camera will see all of the darkness around a bright translucent color and choose an exposure that will give more light for the dark areas. That, unfortunately, will usually mean that the bright areas get overexposed. Check your LCD to be sure that your bright areas are not getting washed out.

Translucent light can also highlight the structure of things like leaves, insect wings, and so forth. These structures make great close-up subjects in and of themselves. Add some translucent color to the mix and you can get some very effective images, such as you see in **Figure 7.11**.



ISO 200 • 1/1000 sec. • f/4 • 50-200mm lens (MFT)

Figure 7.11 A strong backlight shows off the translucence of these sumac leaves and makes them come to life.

Distracting Light

A big problem that comes from close up work is light in the wrong place. Even if the light on the subject is great, if the light on parts of the image that surround your subject is inappropriate, that light will be very distracting. A good example of this happens when there are

bright areas around the edges of your picture, as seen in [Figure 7.12](#), especially when they are brighter than the light on your subject. Bright areas within a photograph will always attract the viewer's eye. If they are away from your subject, they will pull the viewer's eye away from the subject.



ISO 200 • 1/500 sec. • f/4 • 60mm lens (MFT)

Figure 7.12 This little native bee photo would look good except for the brightly lit out of focus flower buds at the top that pull our attention there.

Strong, specular light can create strong shadows. Though shadows can be very interesting and attractive in one situation, they also can be distracting and obscuring in others. Remember that we can see into shadows better than a camera can, so when you have strong shadows, be sure that they are not creating a distraction and keeping the subject from being seen properly.

Another aspect of light that can cause problems is a backlight that creates a strong flare. Flare comes because light is hitting the front of the lens and bouncing around inside that lens. Backlight means the light is behind the subject and heading toward you, which can mean light hitting the front of your lens.

Specular flare shows up as funny little bright and colored shapes going on a line away from the bright light. Diffuse flare shows up as a lighter area spreading over the image that lowers the contrast of the

image. Diffuse flare is more common with close-up work. Both of these show up in [Figure 7.13](#)—the strange curved “dash” below the lower right flower is specular flare, while the foggy look at the upper right is caused by diffuse flare. The diffuse flare is visually interesting in this photo, but the specular flare is a distraction.



ISO 200 • 1/125 sec. • f/4.5 • 12-35mm lens (MFT)

Figure 7.13 Both diffuse and specular flare show up in this image.

All lenses are susceptible to flare, though some more so than others. Zoom lenses, especially those with a wide focal-length range, are particularly sensitive to bright light. Always use a lens shade whenever you are shooting toward the light. (A lens shade is a good idea most of the time up close anyway because it keeps stuff from hitting the front of your lens.) If you are on a tripod, you can try holding your hand or hat over the lens to block the light hitting the lens. You can also try moving slightly to see if you can make the flare go away.

The Filter Flare Problem

Many photographers add filters to the front of their lenses for protection. You will find that this is not commonly done by pros. A big reason for this is because of flare. Adding a flat piece of glass to the front of your lens is like adding a mirror for light

bouncing around inside your lens when you are shooting against the light. Filters commonly add flare to images.

Chapter 7 Assignments

See the light

This exercise will really get you starting to see the light. On a bright, sunny day, go into a location such as a garden that offers you good close-up opportunities. Now instead of looking for subjects to photograph, look for light to photograph. Look for light and its interactions with subject and surroundings. Don't worry about the subject. The light becomes your subject. I guarantee this will give you a whole new look at light.

Find separation light

Now go out into a good close-up location and start looking for ways to separate your subject from the background simply by using light. It can actually be helpful to look at the light more than just looking at subjects. Find interesting light that creates a lot of separation, then look for your subject within that light. Remember that separation light is not just backlight. It is any kind of light that creates a difference between your subject and what is behind it.

Shoot for drama

Dramatic light can be a really effective way of creating photographs with impact. Dramatic light comes when you have strong contrast between your subject and its surroundings because of the light. Go out and look for spotlight, then try to find and photograph as many examples of it as you can. Spotlight is pretty easy to use when you are up close because you can often find a subject that gets light and everything around it is in the shade.

Look for gentle light

Gentle light has its own unique quality. It comes when you don't have strong shadows such as on a cloudy day or in the shade. Find an area that you can seriously work with for a series of shots where you are only working with gentle light. Take at least 20 images without anything except gentle light. Look for ways that you can get the most out of the quality of this light, including seeing subtle tonal and color

patterns that don't show up in bright, contrasty light.

Work with texture and light

Texture often is a key part of close-up macro work. Texture is also extremely affected by light. Go out on a day that has bright light with good shadows and then photograph textures. Spend some time photographing only textures up close. Watch the light and see what is happening to the textures as you move around. Be careful that you don't have distracting light taking away from your texture.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

8. Adding Light on the Close-Up



ISO 100 • 1/5 sec. • f/11 • 12mm lens (APS-C)

Sometimes you need to bring your own light

Light may be basic to photography, but nature doesn't always cooperate to give us the best light for our close-up work. It can be too dim, too dull, or simply inappropriate for the subject and for our needs for the photograph. That's when we need to add some light.

There are two types of light that can be used, flash or a continuous

light source. Flash is a great resource because it is highly portable and has a color temperature (white balance) that balances with daylight. Continuous light can come from any light source that is either on or off, but today superb LED lights made for photography can be a terrific option for adding light to the subject. They are also balanced for daylight, and many units are totally portable for field use. This chapter will help you decide which type of light is best for you and also how to use either light source outdoors.

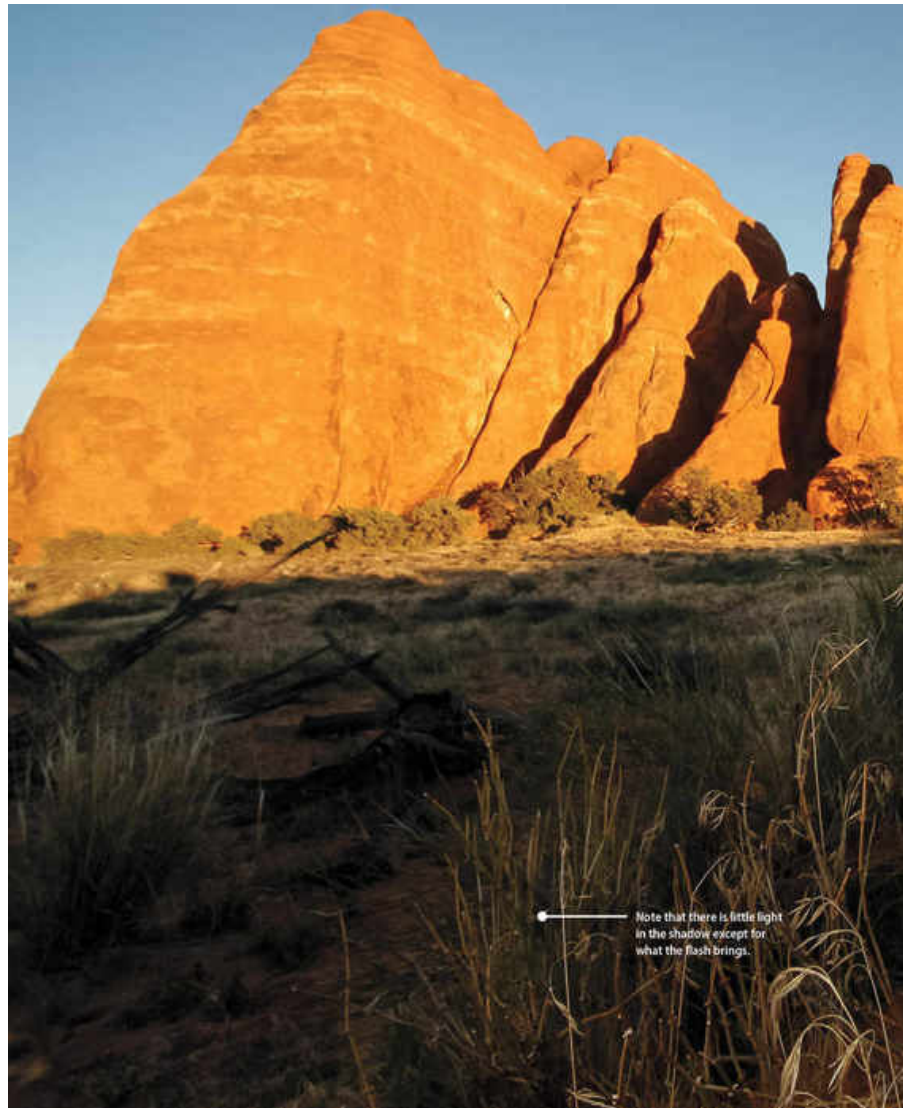
Poring Over the Picture

This image is a close-up with a landscape in the same photo, something you learned about in [Chapter 5](#). This is a scene in Arches National Park. You can find asters like these just about anywhere, but finding them in this context is unexpected, so I wanted to show their unique environment.

The light on the rock fins in the background was from a low sun, but the asters were in the shade, so to balance them and create some drama, I used a flash.



ISO 100 • 1/15 sec. • f/16 • 10mm lens (APS-C)



Note that there is little light
in the shadow except for
what the flash brings.



The light on the rock formation comes from a setting sun to the right.

The light on the asters comes from a flash held to the left.

The brightness of the flash balances the flowers with the background rock.

The off-camera flash gives some dimension to the light on the flowers.

Why Use Added Light

I love natural light and all of its nuances. I use it most of the time. In fact, I try to use natural light whenever I can because it offers a great deal to the aware photographer. And because it is always there, I don't need to carry anything else with me in order to use it.

However, natural light sometimes has problems, and to overcome them, I will absolutely use added light, either flash or a continuous light source. There are five main reasons for using added light for close-ups:

1. To improve poor light quality

2. To add additional light
3. For balance
4. To exercise creative control
5. To deal with sharpness challenges

I want to help you understand how to use added light well, so I am going to explain these reasons in more detail. Then I will get into the specifics of how to use flash, and finally, talk a little about other light sources.

Poor Light Quality

Sometimes light is just not attractive. You might have a heavy cloud cover so that the light is flat and gray. This is a very common problem for close-up work when the light just is too dull for your subject. Or maybe the light and shadow are in the wrong places.

Figure 8.1 is a good example of this. I was at a location that had great lichens on the small branches of the shrubs of an area of chaparral. The day was gray and definitely had unattractive lighting. The natural light made the lichens look flat, gray, and unappealing. By using flash, I was able to bring out the wonderful texture and form of this lichen on a branch.



ISO 200 • 1/180 sec. • f/22 • 35mm lens (MFT)

Figure 8.1 Flash brought out the texture in this lichen.

Not Enough Light

When the sun goes down and you're out in nature, light levels can drop very quickly so that there is simply not enough light for a good photograph. Modern cameras allow us to shoot with high ISOs at quite low light levels, but you reach a point, especially if you are in the shade, that there simply is not enough light to get a quality image. Nature doesn't quit then and there are still photographs to be had. In fact, night itself can bring all sorts of interesting subjects out that can really only be photographed with some sort of added light.

In [Figure 8.2](#), a small anole sat on some leaves in the rain forest of Costa Rica. It was dusk, and the density of the forest along with rapidly disappearing light made the light levels way too low for a good photograph. A flash held high and off to the left gave some nice side lighting and allowed me to get the shot.



ISO 200 • 1/90 sec. • f/16 • 35mm lens (MFT)

Figure 8.2 This anole could not have been photographed without added light.

Balance

There are times when the light on your close-up subject is very different than the light in the background. That can be quite interesting and even give you the chance for a creative look at your subject.

However, sometimes this simply doesn't work. The light can be too bright in the background so that it is way too washed out or you might want to have an equal balance of light on your subject and light on the background. The latter is exactly what happened for the

photograph of the asters used for the Poring Over the Picture image for this chapter. By using flash, I could balance the flowers in front of the rock fins in Arches National Park.

Creative Control

Added light can also give you the ability to control the brightness of your background in order to creatively show off your subject. You have to put enough light on your subject so that you can expose properly for it while at the same time control the brightness of your background. By controlling the flash on your subject as well as the exposure of natural light on your background, you can change how dark that background is, ranging from the same brightness as your subject all the way to pure black.

When you are close, light falls off very quickly over even a short distance. That means that you can light up a subject separately from the background quite easily and then control how bright your background is. You do this by balancing the exposure for the flash on your subject with the exposure for the natural light on the background. I will explain how to do that later in the chapter.

For **Figure 8.3**, a photograph of a little crab-like spiny orb weaver I shot during the afternoon in Florida, I controlled how bright the background was so that the spider and some of the silk of its web would show up well. This also created a dramatic look for the photograph. If I had shot this normally, without flash, the background would have been a normal brightness and made for a much less interesting photograph.



ISO 100 • 1/45 sec. • f/22 • 50mm lens (APS-C)

Figure 8.3 Flash on the subject created a bold image that kept the background dark and dramatic, yet still visible.

Sharpness Challenges

As discussed in [Chapter 4](#), fuzzy images due to camera movement during exposure can especially be a problem with close-up work. An important solution is to use a fast shutter speed, but sometimes the light won't allow that. This is where flash can really come in handy. Flash is always very, very fast. No matter what your sync speed is for flash on your camera, the actual duration of an automatic flash is typically 1/1000 second at normal distances, then much, much faster up close—even as short as 1/10,000 second, all of which will indeed give you very sharp images.

It would be difficult to get the little spider in [Figure 8.4](#) sharp without flash. This spider is probably half an inch long. There is no way it would be sharp at the shutter speed used, which was 1/15 sec. I used that shutter speed to keep a brighter background (see the section “[Balancing Backgrounds](#),” later in this chapter).



ISO 100 • 1/15 sec. • f/16 • 50mm lens (APS-C)

Figure 8.4 The nearly instant duration of flash helped make this picture very sharp.

Close-up work means you that you are extremely close to your subject, and so is your flash or other light as well. That means there is a lot of light hitting your subject allowing you to shoot at small f-stops. This can be important if you need more depth of field.

The Off-Camera Light

I think it is very important to get your light off of the camera in order to get better close-up images with added light. This is true whether you are using flash or any other light.

When the only light that you have is a flash that is on camera, there are a couple of things that can really limit you as a photographer:

- Your light is always in the same position and always coming from the same direction.
- Because it is mainly coming from the front of the subject, your light tends to be a flatter light and often much less interesting than a light that comes from other directions.

When you get your light off the camera, you can position it for optimum lighting on your subject. This helps because:

- You can use sidelight, backlight, top light, and all sorts of variations in between. This is fairly easy to do up close because you don't have to move the light far to get a change on your subject.
- You can direct your light so that it hits only the subject and keeps off of the background.

In [Figure 8.5](#), I held a flash well to the right of these harebell flowers to get a more interesting, three-dimensional light on the flowers as well as pick up the texture in the rock that the plant was growing from.



ISO 200 • 1/30 sec. • f/8 • 14–54mm lens (MFT)

Figure 8.5 An off-camera flash created an interesting light for this small flowering plant growing in the rocks of Northern Minnesota.

Working With Flash

Flash sometimes intimidates photographers because it can be tricky to get it to look right. Flash can give a harsh and unattractive light to a subject, though often up close that can be used to create dramatic photos.

I have found that many photographers think that they have to have a special kind of flash in order to use flash up close. You don't. While specialized, so-called macro flash, such as ring lights and twin flash, can be used up close to advantage, you don't have to have them. I have owned and used both, but I can tell you that typically I simply use a standard accessory flash off-camera because of the versatility it gives.

My preference for close-up flash is to attach a flash to the camera with a dedicated flash cord, as seen in [Figure 8.6](#). A dedicated flash cord is simply a cord that is designed to make your flash work automatically with your specific camera. These cords are about 3 feet long and attach to the camera at one end and the flash at the other. Then you can move the flash around the subject and keep a solid connection for communication to the camera.



Figure 8.6 An off-camera flash communicates consistently with the camera by using a dedicated flash cord.

You might wonder about wireless flash, which is common today with digital cameras. Why bother with a cord if you can go wireless? It has to do with the problem of solid communication between flash and camera outdoors. Wireless flash built into cameras today works by flashing a control light from the camera to the off-camera flash. Sometimes this is an infrared light; sometimes it is a pulsed light. This allows the camera to communicate with the flash to set it off and to make sure exposure is correct.

That works really well inside because the light from the camera can bounce off of all sorts of surfaces and still hit the sensor on the flash. Outdoors, however, that light can literally head off into the woods and never hit the sensor at all. One time I had a workshop where one participant was determined that his off-camera flash would work fine because it had worked fine for him indoors. Unfortunately, outside, we could never get it to work consistently, which made his flash work very frustrating. This is never a problem with a cord.

Basically you hold your flash with your left hand and your camera with your right—you can't do this in any other way because you cannot hold your camera with your left hand only and release the shutter. I know that this sometimes can be a little awkward, but you can move the flash around, pointing it at the subject, and take pictures. Even though I do this with the flash in the left hand, I am able to also get the flash high over the subject as well as over to the right of the subject. Remember that you don't have to go far to change the light with close-ups. **Figure 8.7** shows an image taken with a flash held off-camera.



ISO 200 • 1/90 sec. • f/11 • 12–60mm lens (Four Thirds)

Figure 8.7 An off-camera flash created depth and dimension for this night shot of a desert toad.

The great thing about digital is that you can instantly check your LCD to see if you got the shot you expected. If you don't like the light, try it in a different position. This can take a little practice to get your aim right with your flash, but again, the LCD helps.

Twin Flash

Twin flash is a special close-up flash system that fits on the camera or around the lens, as shown in [Figure 8.8](#). This can be very effective in controlling the light on a close-up subject. However, while it will give lots of light when used at the default setting of both flash at equal power, this can cause distinct problems in your image. The two lights can cross and create conflicting highlights and shadows. They also will flatten out the scene, filling in shadows that can be so important for showing form, texture, and dimension.



Figure 8.8 This twin flash system fits around the camera lens and puts the flash very close to the subject.

A better way to use twin flash is to make one light stronger than the other and even move them around. Having one light stronger allows that light to be the main light for highlights and shadows so that the other light is a fill light that keeps shadows brighter or can even be used as an accent light. Twin light systems that allow you to dismount the flash heads and move them away from the camera offer a lot of versatility. With them, you can even put one light behind the subject for some rim light while using the main light on the camera to illuminate the color and pattern of your subject, as shown in [Figure 8.9](#).



ISO 200 • 1/45 sec. • f/16 • 50mm lens (MFT)

Figure 8.9 In this image, one of the twin lights was held above and to the back of the flowers, while the other brightened the color seen by the camera.

Why I Don't Like Ring Lights

A ring flash or ring light is a specific type of light source that puts the light around the lens so that the subject is bathed in light. Since this light is coming from around the lens, it fills in all of the shadows. That is exactly why I don't like it. I like shadows because shadows give texture and form to close subjects.

Unless you are a dentist or doctor who needs to have all of the shadows filled in so you can do a proper diagnosis, you may find that ring flash makes pictures look rather flat. It also will light up the background in ways that aren't always appropriate for the subject. That is not to say that it can't be used well, and I know some photographers that do that, but it does have a tendency to give a rather flat and even look that doesn't change.

Flash Exposure

Modern flash works very well with a digital camera to give you a good

exposure when you are shooting on automatic. Flash works by sending out two flashes for the exposure. The first flash is a pre-flash that helps the camera determine the proper exposure, which it then sets with the second flash. Proper exposure is controlled by the duration of the flash, shorter for less exposure, longer for more exposure, but never very long. Because less light is needed up close, flash durations for close-up work tend to be very, very short.

Like all exposure systems, automatic flash is based on trying to make the subject a middle brightness. Most of the time this works pretty well, but when your flash is way off camera and is putting light on the subject but not on the background, the camera can see a dark background and think that more light is needed on the subject. This will then overexpose the subject.

With digital, this is easy to correct. Just look at your LCD, and if the subject is washed out from too much brightness, use the flash exposure compensation to decrease the light on your subject. A challenge that you will sometimes run into with close-up work is that your flash can be so close to the subject that the flash seems to always overexpose the subject. When this happens, try moving the flash a little farther away or put something over the flash to block the light slightly (I have used my fingers, Kleenex, and tape, among other things, to do exactly that).

A quite useful technique for off-camera flash is called feathering, and this can also help with exposure. A flash has its main light in a rough circle, then it drops off quickly along the edges of that circle. By pointing the flash away from the subject so that the flash is not aimed directly at the subject, you can catch your subject with that edge light, a slightly different light that is not as bright. That is called feathering a light. This also helps you direct your flash so that it stays off of things you don't want it to light, such as parts of your background, as shown in **Figure 8.10**.



ISO 200 • 1/90 sec. • f/16 • 12–35mm lens (MFT)

Figure 8.10 Feathering the flash put light on the snail and its leaf and not on the background.

Balancing Backgrounds

A big challenge for any photographer using flash up close is the background. Often the background becomes so dark that it is black. Sometimes that is very interesting and creates a dramatic image ... but not always. Sometimes it makes the picture look too harsh, plus you lose any feeling of natural light.

The reason for this is how close the flash is to your subject. Light falls off in intensity faster than it might seem it should for the distance; flash falls off at a relationship of the distance squared. That means that when your flash is 1 foot from your subject and 2 feet from the background, the light on the background is $1/4$ the light on the subject. If the background is 3 feet from the subject, then the light on it is $1/9$ of the light on the subject. That's why a background can become black very quickly.

The way around this is to understand how flash works. The duration of flash is so short that shutter speed has no effect on exposure other than properly syncing with the flash. Flash exposure is only affected by the f-stop on the camera. Now, remember that normal, natural light exposures are affected by both f-stop and shutter speed. By changing your shutter speed so that it balances with your f-stop to

create a good exposure for the background, you can balance your flash with the background and have no effect on the flash exposure.

I know that can be a little confusing at first, but remember you always have your LCD to check exposure and change shutter speed again.

Usually you will be slowing your shutter speed down to allow more light in from the background. Some cameras will do this automatically with aperture-priority autoexposure if the camera changes the shutter speed rather than locking it to the flash sync speed.

If you have trouble doing this, try using manual exposure. Set your manual exposure to give you the brightness you want on your background, then use your flash on its auto-exposure setting. The flash will give the correct exposure based on the f-stop you chose and the shutter speed will allow the background to have the right brightness.

In [Figure 8.11](#), I used exactly this technique to balance a shaded spiderwort flower with the soft sun on the woods behind it. The flash worked automatically with the f/11 aperture, while the background was exposed with the f/11 combined with a 1/160 sec. shutter speed.



ISO 100 • 1/160 sec. • f/11 • 18–55mm lens (APS-C)

Figure 8.11 An off-camera flash gave good light on a spiderwort while balancing its light with the background.

Not Just Flash

Flash used to be the only practical solution for added light in the field.

That is no longer true. LED lights can be used outdoors quite readily. They are now lightweight, compact, and can be used with batteries. Another big advantage to them is that they are typically balanced to daylight so that their light will match daylight just as flash does.

I happen to really like these new LED lights. While I have enough experience with flash to have a good idea of what I am doing as I shoot, still, it is always a bit of a guess as to how the light is working on the subject. An LED light is a continuous light source, meaning that it is continuously working as long as it is turned on, unlike a flash, which has only bursts of light. Because of that, you can see exactly what the LED light is doing as it lights your subject ([Figure 8.12](#)). That is so nice because you are now able to instantly see what is happening to the light on your subject as you move it for better light. Sometimes moving a light just a couple of inches can make a big difference on a close-up, and having the light always on really helps you do that.



ISO 400 • 1/200 sec. • f/8 • 60mm lens (MFT)

Figure 8.12 An LED light illuminated this gaillardia flower on a dark day and gave it texture and form.

I have shot close-ups outdoors at night, with subjects such as nocturnal spiders on their webs, using other types of lights, such as quartz lights. They do work, but they require a power cord, so there are big limitations as to where you can use them. In addition, they are hot and cannot be used very close to a subject. LED lights with

batteries can be used anywhere, plus they are cool and can be brought up close to the subject when a bright light is needed.

Everything I do with a flash off-camera can be done with a small LED light, so everything in this chapter about added light applies to an LED light as well. Right now I am using an F&V R300 LED light, as seen in [Figure 8.13](#). This light has good power (it is turned way down in [Figure 8.13](#) so it can be photographed with that background) and can use a battery. It is designed as a ring light, but I don't use it as a ring light. I use it as an off-camera light, including using it with the small soft box that is designed for it (the bracket for the soft box makes a good grip for handholding). It has enough power to be used outdoors to light up any subject in the shade or on a cloudy day as well as brighten dark areas on a sunny day.



Figure 8.13 This LED is easily handheld and has a battery for fieldwork. Its output can be dialed up and down as needed for the shot (dialed down for this shot).

LED light technology is constantly changing and continually getting better. Even by the time you read this, there may be smaller, more powerful lights available that can be used for close-up and macro work.

Chapter 8 Assignments

Start with your camera's flash

Flash can be intimidating because you cannot see its light effects until you take the picture. If flash seems hard, start easy with the built-in flash on your camera. Pop it up, get in close and see what you get. You may find that larger lenses will block the flash from your subject. One way around this is to put a foam coffee cup over your flash to diffuse it and move its light above the flash itself. This also adds a nice diffusion effect at any time and will help if your flash is too bright up close.

Try off-camera flash

The best way to work with off-camera flash is just to start doing it. You need a flash that can be used off camera. If you have wireless capabilities with your camera, try them and see if they work for this purpose outdoors. Start moving your flash around the subject, take lots of photos as you do, and compare the shots on your LCD first, then on your computer later.

Study the light

Added light works best when you use it in ways appropriate to the subject. One way to see what it can do is to get an inexpensive but strong work light from some place like Home Depot or Lowe's. Put your camera on a tripod (a work light probably won't give you enough light for a fast shutter speed), then see what it looks like as you move it around your subject. Don't be afraid to get it close! This works great with Live View, but you can also just take a shot and look at it in the LCD playback. This is also an inexpensive way to get a feel for what a flash might be able to do.

Go for the drama

Not every subject looks good in dramatic light, but this type of light works really well when you are trying to see what an added light can do for your close-up work. Put your flash or LED directly to the side of your subject, then try it behind. Move it to both sides of your subject. See what you can do with deep shadows and bold highlights.

Balance the background

Find a subject that has a background that is either brighter than or at least the same brightness as your subject. Experiment with changing your shutter speed as you shoot manual exposure. This changes the brightness of the background as you use a flash on autoexposure for

your subject. You can also do this with an LED light by changing the distance from light to subject to change brightness on the subject. If the light has a brightness knob, try changing brightness that way.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

9. The Importance of Backgrounds



ISO 200 • 1/400 sec. • f/4.5 • 60mm lens (MFT)

Pay attention to both your subject and background

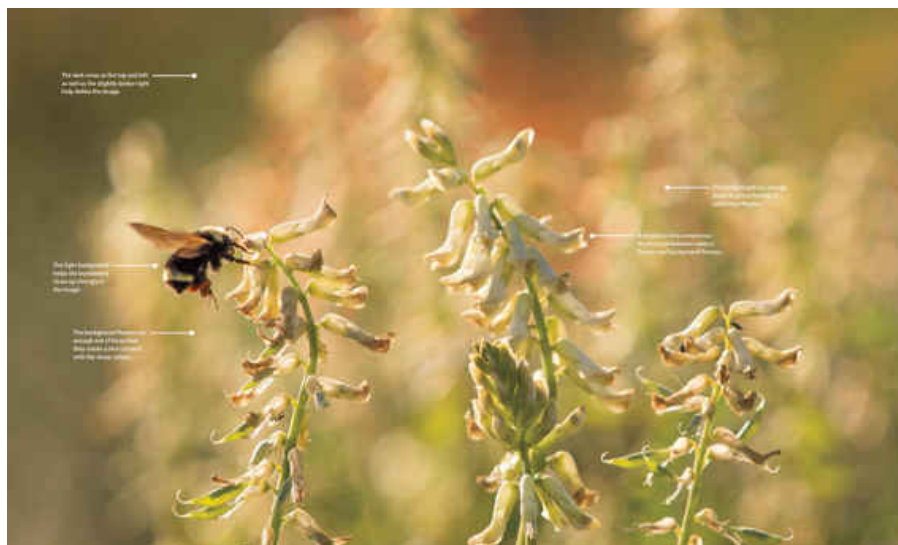
You have learned a bit about backgrounds throughout this book. You have seen how backgrounds change with light and with different focal lengths. Backgrounds are so critical for close-up work that I am devoting a chapter to them. This chapter will integrate some of the things you learned from earlier chapters with new concepts to enable you to better see backgrounds. You will gain an awareness of

background that will help you often as you photograph up close.

Out-of-focus is not out of sight. It is so easy to ignore the background when you are shooting because a close subject will often be so much sharper than the background. That sharpness and the amazing qualities of a fascinating subject can keep you from seeing the background. But always remember that just because a background is not sharp does not mean it is not important. Good backgrounds are essential for successful close-up and macro work. Just a little attention to them can bring big results.

Poring Over the Picture

Bumblebees are a wonderful close-up subject. They can be hard to photograph because they are constantly on the go, especially with smaller flowers like these locoweed blossoms. I saw several bumblebees working this area, so I set up for these flowers and waited for one to arrive.



ISO 400 • 1/2000 sec. • f/4 • 50–200mm lens (MFT)

The dark areas at the top and left as well as the slightly darker right help define the image.

The light background helps the bumblebee show up strongly in the image.

The background flowers are enough out of focus that they create a nice contrast with the sharp subject.





Background Is a Choice

Your background is always a choice when you are photographing up close. Never allow it to just “happen.” Yet, I know that when you are concentrating on your subject it is easy to forget about the background and to simply let it “happen.” It takes some discipline to force yourself to see more than the subject.

This starts as soon as you see your subject. Don’t wait until the camera is in front of your face and you’re starting to focus on your subject. Look to see what is happening behind your subject as you start to move in to get your shot. Backgrounds can change hugely when you move only slightly when you’re up close, and the closer you get, the

smaller these distances need to be in order to get that change. At true macro distances, changing your camera position just an inch left, right, up, or down can make a big difference in what is behind your subject.

You are always looking for three things in your background.

1. Find ways to use your background so that it sets off your subject clearly within the picture.
2. Be sure that your background does not have distractions in it that take away from your subject or the overall image.
3. Finally, check to see that the background works with the whole picture to create an integrated image with subject and background.

You can do all of those things when you have a mindset that the background is important and that you will want your background to work with your subject. Even if you forget when you take your picture, you can always check your background by looking at your LCD.

The pair of images in [Figure 9.1](#) is a good example of this. This little caterpillar is barely 3/8-inch long. I had to move very little to change the background behind it, yet that background could be changed dramatically to affect how well the caterpillar stood out within the photo.



ISO 200 • 1/2000 sec. • f/4 • 60mm lens (MFT)

Figure 9.1 At true macro distances, you don't have to move much to change the background.

The Simplified Background

A very important background choice is the simplified background. Years ago, it was popular for photographers to take a big sheet of colored paper and put it behind their close-up subjects in order to get a simple background. These backgrounds never really looked quite right because it is pretty rare to have such a solid colored background in the real world.

I like to simplify the existing background so that there is still some context for the subject, context revealed by its background. The easiest way to do this is to simply shoot with very shallow depth of field. Don't be afraid to shoot with your lens wide open or close to it. As I mentioned in several discussions earlier in the book, you don't need to always stop your lens down to the very small f-stops for close-up work. In fact, doing that can create backgrounds that are neither simple nor effective.

However, you cannot count on a wide f-stop for automatically creating a simple background. Remember that distance is important, and if you can move to gain more distance between subject and background, the background will be more out of focus.

Also remember that if something is out of focus, it can still have an effect on the image, as seen in [Figure 9.2](#). The subject is sharp, the background out of focus, but the subject does not show up well against that busy background.



Figure 9.2 An out-of-focus background does not guarantee a simple background.

I corrected this problem in [Figure 9.3](#). The composition and light are the same, but the image looks considerably different because I shot with the lens set to the maximum f-stop of f/2.8. True, the subject area has less depth of field, but the image is much simpler and easier to understand. It is better to have a clear image that your viewer can understand and appreciate than a photo with lots of depth of field that creates a confusing background.



ISO 200 • 1/320 sec. • f/2.8 • 60mm lens (MFT)

Figure 9.3 By changing the f-stop to f/2.8, I was able to get a simpler, cleaner background.

It is also important to watch the light on the background to be sure that it truly does keep it simple. You can also move around so that the brightness of the background changes in relationship to your subject, which can also help simplify the image. For example, you could move so that you had a lot of shadow behind your subject, which could simplify the background by keeping it very dark.

Another way of simplifying your background is to use a telephoto focal length. First, that will give you less depth of field, which may be exactly what you need. In addition, the narrow angle that a telephoto

focal length takes in of the scene in front of you allows you to find and use smaller areas of your background to be behind your subject.

Don't be afraid to throw a shadow on your background to simplify it as well. Many times I've taken my jacket off, for example, and held it or thrown it over a nearby bush in order to create a shadow behind the subject.

Another nice way to get a simple background is to use the sky. Get down very low so that you can put your subject against the sky. This even works when you are using a wider-angle focal length. The wide angle will make your background smaller, which will allow the sky to be bigger in relationship, a bigger sky that can be used well behind your subject.

The Complex Background

Simple backgrounds can be great and I use them all the time. However, they usually don't show much context for your subject. Often I like to connect the subject to the background in such a way that the viewer understands something beyond just seeing the subject. That may mean helping the viewer know things, like there are many flowers in a group, or it can mean actually connecting the subject with its environment or setting.

As noted in [Chapter 5](#), including environment or setting in a photo can create a complexity that may make a clear composition challenging. Still, there are some things that you can do, and they all start with keeping an attitude that your background is important. Sometimes you can work with less depth of field to help simplify a complex background *enough* to still hold some detail in the background for context of your subject. Even if a mountain in the background is out of focus, for example, it can still be recognizable enough that the viewer knows that your subject is in a mountainous area.

Another way of dealing with a complex background is to get very low to the ground and point your camera up. This will allow you to use the sky to simplify much of the image yet still keep a feeling of the environment behind the subject. You don't have to have something big in the background in order to know that your subject is in a very specific place. By getting low and pointing your camera up, you will keep the complex part of the background low in the image area, often below the subject itself.

Both of these techniques were used for [Figure 9.4](#). The low angle allowed me to put a simpler sky behind the spider, plus a wide aperture toned down the background yet still allowed it to register as

a specific environment.



ISO 200 • 1/1250 sec. • f/4.5 • 7.5mm lens (MFT)

Figure 9.4 This garden orb weaver spider built its web alongside a road, by a fence, surrounded by trees—interesting elements of setting—but challenging to make the spider show up clearly.

Often you can find something in the background that is darker or lighter than the subject so that you can put that behind your subject in the composition. This can make even a very complex background work because you are not trying to put the entire background right behind your subject. You are looking for a contrast behind your subject to help set it off within the image area and still keep that environment behind it.

Sometimes it helps to use either a wider-angle focal length or a more telephoto focal length and change your camera position, i.e., get in close with a wide-angle or back up with a telephoto. In either case you are changing what is actually seen behind your subject. By changing what is seen in the background, you can use it differently to help your subject stand out better. There is no rule that one focal length is going to work best for a particular subject and its background, so be open to possibilities for your photo.

Another thing we can help with is the light. Backlight often will help you deal with an environmental background because you can get a

nice rim light or separation light on your subject to separate it from the background. You may also find that if you move around slightly, a different direction of the light will change what is light and what is dark behind the subject, changing how well the subject stands out from the background.

Composition can also help you define your image so that you clearly communicate what is important in your photograph. To do that, you have to really know what is important then move around until your subject does show up as being the most important thing in the image. One thing that can really help is to watch for overlaps that prevent your subject from clearly being seen. This happens, for example, when a nice flower close to the camera overlaps a flower in the environment behind it, making the flower outline confusing. Use your LCD to help.

Both backlight and composition help define the paintbrush flowers in **Figure 9.5**. The backlight gives them separation, while a bold use of their color filling the foreground clearly shows them off in the composition.



ISO 200 • 1/400 sec. • f/11 • 7.5mm lens (MFT)

Figure 9.5 An obvious backlight gives drama and separation to the paintbrush flowers seen here.

Background Distractions

You can have a stunning subject in terrific light, but if the background has big distractions in it, the image will never show off your subject well. Background distractions have a tendency to creep into images without you noticing, yet the viewer will definitely notice because their eyes will be drawn away from the subject.

A big, big distraction is a bright area in the background away from the subject. Bright areas, especially bright areas that contrast strongly with dark areas right next to them, will always attract the viewer's eye. If those bright areas are part of your subject or behind your subject, then the viewer will go right to your subject. If those bright areas are away from your subject, the viewer's eye will always be attracted to them and they will fight with your subject.

Bright areas that contrast with darker areas around them create what is called a tonal or brightness contrast. Tonal contrasts can be the strongest of any contrast used in photography. Because of that, they will overpower even something like a very strong sharpness contrast. So even though your subject is perfectly sharp and your background is totally out of focus, a tonal contrast in that background away from your subject can still dominate the photo, as seen in [Figure 9.6](#). In this image, the grasshopper is perfectly sharp at the head and eyes, yet the bright spots in the background keep us from really seeing it.



ISO 200 • 1/250 sec. • f/8 • 60mm lens (MFT)

Figure 9.6 The grasshopper might be sharp, but the background has bright areas that fight for our attention.

Another big distraction comes from distinctive shapes that show up in your background, shapes that don't really fit with your subject. One of the most common of these is a slightly out of focus branch cutting through your background and making your viewer look at it. [Figure 9.7](#) illustrates this strongly. The viewer sees the shape as an out-of-

focus branch and is distracted by it.



ISO 200 • 1/1000 sec. • f/5.6 • 60mm lens (MFT)

Figure 9.7 The out-of-focus branch at the top of the image is a big distraction from seeing the lupine flowers.

In fact, you need to carefully consider the function of almost anything that shows up in the background as a semi-recognizable shape. If it is too strong, the viewer will try to look at it and try to understand it. If you are working with a subject with a complex background that shows off setting or environment, that can be important, but you have to still look for ways to help those background things stay in the background

and not compete with your subject.

At what point does a background change from being important to showing off the environment to being distracting? That's not always an easy question to answer. You really have to look at what your picture is about and think about what the background is doing for your subject. You also have to realize that because this can be a difficult question to answer, different photographers will answer it differently.

In **Figure 9.8**, the stuff at the upper right is definitely a distinctive part of the background. However, I think that it adds to understanding the environment of this wolf spider with her egg case. The contrast of the spider is very strong within the image so that its tonal contrast along with with clearly defined sharpness keeps your eye on the spider.



ISO 400 • 1/400 sec. • f/11 • 60mm lens (MFT)

Figure 9.8 The spider is emphasized in the photo through tonal and sharpness contrast so that it holds its own against a detailed background.

The Simple White Background

In fashion and portrait photography, plain white backgrounds are often used to create a bold, simple image that emphasizes the subject. Since there is nothing in that background to attract the viewer's eye

away from the subject, there is no question as to what the subject is and what you're supposed to look at.

This is a technique that can be used quite effectively for close-up and macro work. There are a number of photographers who are using this quite well to show off the small nature of our world. Clay Bolt and Niall Benvie started a worldwide movement to use this photography as a way of getting people to look more carefully at life all around us. Check out www.meetyourneighbours.net (Figure 9.9) to see some absolutely beautiful examples of this technique. They even have a whole section about how to create what is essentially a studio in the field to capture this look; plus, Niall has an inexpensive eBook that goes into more detail about it.

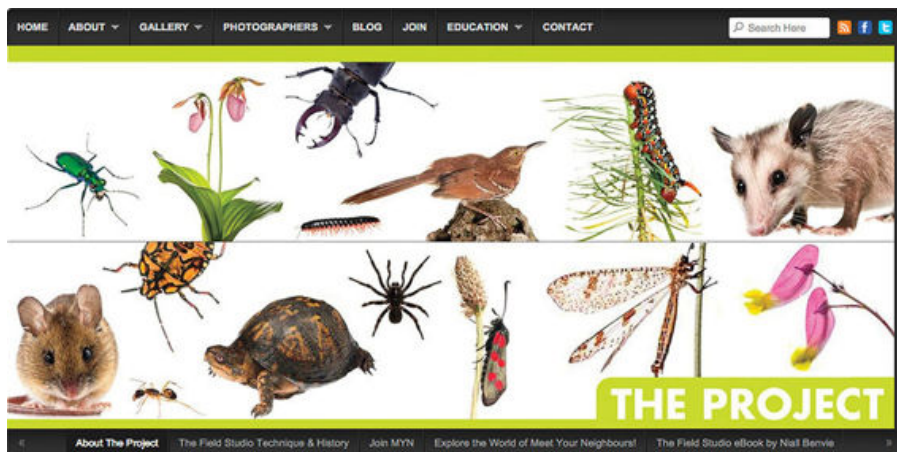


Figure 9.9 Meet Your Neighbours is a website that uses a simple white background for the photography of all subjects.

I have done some photography using this type of background, though I tend to keep it a little simpler than Clay and Niall do. They like to have a very bright background that eliminates shadows. That definitely creates a distinctive look. I often simply place my subjects onto a white card to create a similar look (this technique sometimes requires you to catch little critters and put them on your background), but then this does allow shadows to show. However, you can move this white card into a position behind your subject so that the subject does not throw shadows onto the background, as seen in Figure 9.10.



ISO 200 • 1/640 sec. • f/11 • 200mm lens (MFT)

Figure 9.10 The grasshopper on bladderpod flowers shows up quite clearly against a plain white background.

You can see how this simplifies the image and keeps your focus totally on the subject. You do have to be really careful of exposure. The camera will see all of that bright white background and think there is a lot of light there, when actually there is not a lot of light but a bright background that is supposed to be bright. You will have to increase your exposure so that the white background is white; otherwise, your subject will be too dark.

I tend not to do this type of close-up photography a lot, reserving this technique for special purposes, mainly because I really like working with natural backgrounds. For me, showing my subject in context with a location is often very important so I work to bring these together. But that is a very personal decision related to how I like to work, and some people use this plain white background technique extremely well.

Black Background

Another simple background comes from using black. This can be from a black card, black cloth, or even something that you have painted flat black. It is important when you are doing this that you keep the background away from your subject so that your camera doesn't pick up texture from background. It can also be helpful to keep it shaded, out of the main light, because sometimes when a bright light on your subject also lights up a black background, that background no longer looks like a good black. Be careful of overexposing your subject when doing this because the camera will see the darkness of the black and think the image needs more exposure.



ISO 400 • 1/640 sec. • f/5.6 • 300mm (MFT)

Figure 9.11 Never be afraid of shallow depth of field when it can give you a beautiful background for your subject.

Chapter 9 Assignments

Find your choices

Once you understand that you have a choice over what your background will be, you will start looking for different backgrounds. A good exercise is to go out and try to shoot at least two or three different backgrounds of the same subject as you are shooting up close. Try this with all different subjects and in different locations so

that you really start getting into a habit of looking for different backgrounds.

Work with a simple background

Next, go out and try photographing whole series of subjects with as simple a background as possible. This will mean that you may have to use wide apertures, telephoto focal lengths, and even look at how far your subject is away from the background. Remember that any time you can move so that there is more distance between your subject and the background, the more likely it is that the background will be out of focus and simplified.

Work with a complex background

Complex backgrounds can be very challenging to work with. Set yourself a goal of going out and deliberately looking for complex backgrounds behind your subject. Try shooting with a wide-angle lens up close because that will often give you quite complex backgrounds. Now try to work with that background so that the subject and background go together and the subject can be seen easily within the image. Don't forget to check this out on your LCD as you shoot.

Deliberately look for distractions

One way to help you see distractions in backgrounds is to go out and deliberately look for them. Set up your shot on an interesting subject and try to get the background as good as you can. Then move so that there is a bright spot of light up at a corner or along the edge of your picture, an out-of-focus brightness that is in the background. See what happens to your photograph when this occurs.

Try a plain white background

Go down to an art supply store and buy a piece of white foam board. Get one big enough that you can use it as a background behind different types of subjects. Take it out with you into a location where you can do close-up work and experiment with using it behind your subject.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

10. Flowers, Bugs, and Other Subjects



ISO 200 • 1/640 sec. • f/7.1 • 9–18mm lens (MFT)

Tips and techniques for specific subjects

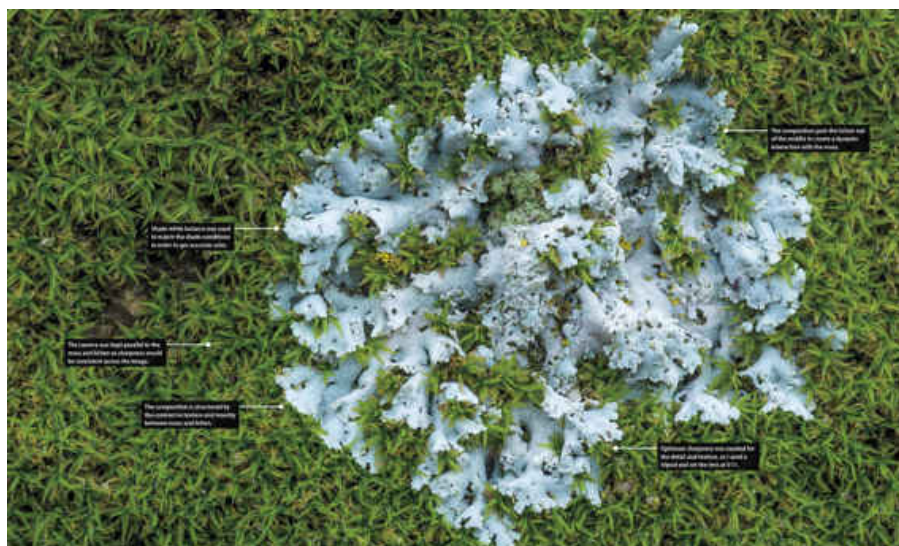
You have seen a lot of subjects throughout this book, along with many techniques to render them well in close-up and macro views. But these subjects have been scattered throughout the chapters without a specific emphasis on any of them. In addition, some subjects might have gotten more emphasis in the photos of a specific chapter because

those photos best illustrated the concepts, not because you might only use the techniques on those subjects.

In this chapter, I am putting a number of subjects together and offering some ideas on how you might better photograph them. I want to help you connect to these subjects so that you might find success photographing them. In addition, I hope I can inspire you to try some new subjects you might not otherwise have considered.

Poring Over the Picture

I had gone up into the Santa Monica Mountains east of Los Angeles specifically to photograph sunrise and early light, but my shoot went beyond that. It had just rained for a couple of days, and I found these wonderful mosses with lichen. Water brings out the best color in both.



ISO 200 • 1/4 sec. • f/11 • 60mm lens (MFT)



Shade white balance was used to match the shade conditions in order to get accurate color.

The camera was kept parallel to the moss and lichen so sharpness would be consistent across the image.

The composition is structured by the contrast in texture and tonality between moss and lichen.



Flowers

The “Pretty Flower” Syndrome

Flowers are pretty. That’s why we are attracted to them, why we buy flowers to bring to our home, why we create gardens. But this can be a trap for the photographer. When photographers start capturing images of flowers, they get excited about the beauty of the flower and forget they are making a photograph. They expect the beauty of the flower to be the photograph, but unfortunately, a flower is not a photograph nor is a photograph a flower ([Figure 10.1](#)). We cannot put that flower inside our camera; we can only create an image that

interprets our experience with it.



ISO 200 • 1/640 sec. • f/2.8 • 12–35mm lens (MFT)

Figure 10.1 A flower is not the photograph, nor is the photograph the flower. You need to think about how the camera is going to render the flower in an image.

To make a better picture of a flower, you have to think about making an interesting photograph. It can be too easy to spot a flower, get in close, point the camera down at it, center it, and forget many of the things you've learned about creating better photographs.

In order to get better pictures of flowers, you need to use the skills and craft you are learning as a photographer, things that you have found throughout this book. You need to start thinking photography and realize that simply getting close to a flower is not enough to make an interesting photograph. You need to think about the light, the composition, what is happening in the background, and so forth.

Creating Flower Portraits

One way of thinking photographically with flowers is to think about making a flower portrait. This requires a certain mindset that puts you in the right frame of mind for a photograph. You will be treating the flower as if you were creating a portrait of a person. Here are some tips that can help:

- Get down to the “eye level” of the flower. You would never think of photographing a person by getting up on a ladder and pointing your camera down at them. You want to be at their eye level. Eye level for a flower is essentially getting your camera at the same height as the flower.
- Use a simple background. Remember that this can be readily done by using very shallow depth of field, especially with a telephoto focal length shot wide open, as shown in [Figure 10.2](#).



ISO 200 • 1/80 sec. • f/5.6 • 70–300mm lens (APS-C)

Figure 10.2 A magnolia blossom shot at “eye level” with a background simplified by the use of a telephoto lens shot wide open.

- Use a background that contrasts in brightness with your subject. Move to find a background that is brighter or a background that is darker than your subject. Early light meant lots of shadows to use for contrast in [Figure 10.3](#), for example.



ISO 100 • 1/250 sec. • f/5.6 • 50mm lens (Four Thirds)

Figure 10.3 Early morning light allowed me to capture this prickly phlox in sun and use a shadow for a dark background.

- Keep a tight framing that totally emphasizes the flower.

Creating Environmental Portraits

Another way to get thinking photographically as you approach a flower is to consider doing an environmental portrait. An environmental portrait is an image that is up close to the subject, but it shows off the background in a way that places the subject in a particular location. Whenever you have a really interesting location where you are photographing, consider incorporating that into your close-ups of flowers. Here are some ideas to do that:

- Get down low enough to your flower that you can incorporate

interesting aspects of the background. This may mean getting your camera below the flower.

- Incorporate enough of the environment in the background that a viewer of the photograph can understand the location, as shown in [Figure 10.4](#).



ISO 100 • 1/500 sec. • f/8 • 12–50mm lens (MFT)

Figure 10.4 These ranger's buttons flowers stand out from the background because they contrast with it in brightness.

- Use enough depth of field to ensure that the background is recognizable. It does not have to be sharp, though.
- Be sure that your subject does stand out from the background by looking for ways to contrast it with things behind it, as demonstrated by [Figure 10.5](#).



ISO 100 • 1/400 sec. • f/8 • 12–60mm lens (Four Thirds)

Figure 10.5 The environment around this small dudleya plant in bloom shows exactly where it lives in among the rocks in the chaparral.

Dealing With Movement

A flower often sits on the end of a long stalk that allows the flower to blow easily in the wind. This can be frustrating when you are trying to keep the flower in focus. There are some things that you can do to help. First, try setting your camera to continuous shooting, then hold down your shutter for multiple shots as you work with your flower. You will typically get at least a few of your shots sharp out of the group. Second, try holding the flower with your hand out of the image area. There are even devices such as the Wimberley Plamp that can hold your stem still. Third, there will often be a pattern to the movement as the wind blows. Watch for a pause in the movement to take your picture. And sometimes you just are going to have to move on and find a spot that is not so windy.

Finding Flowers

Most native species of flowers are highly seasonal. You have to catch them at the right season or not at all. Many garden plants, on the other hand, will bloom during a much longer period through the year.

Spring is a good time to find wildflowers in woods ([Figure 10.6](#)). Many wildflowers spring up from the ground, bloom, and finish blooming before the leaves fully come out on the trees. Spring is also a time to find wildflowers in many wetlands and deserts.



ISO 400 • 1/45 sec. • f/4 • 12–60mm lens (Four Thirds)

Figure 10.6 A strange and beautiful tree flower from the woods of northern Florida, the Florida anise blooms in the spring.

Summer is a time to find flowers that are out in the open, including on prairies. Most plants need a lot of light in order to flower, so being in the open helps. Also, look along the edges of roads, as well as the edges of forests, lakes, streams, and wetlands.

Fall is also a time to find flowers that are out in the open, such as the liatris seen in [Figure 10.7](#). Prairies are a good location for flowers after summer, plus those edges mentioned above.



ISO 200 • 1/200 sec. • f/8 • 200mm lens (MFT)

Figure 10.7 *Liatris* (also called gayfeather) blooms in the late summer and fall.

When looking for flowers, look for more than the obvious bold annuals and perennials. While many trees have inconspicuous flowers, many other flowering trees and shrubs have bold enough flowers for interesting photography. While azaleas, rhododendrons, and roses are obvious choices for tree and shrub flowers, there are many other good flowers on woody plants that are great for photography.

Insects

The Poor Image of Insects

Okay, I admit it, most people don't like insects very much. They buy sprays to kill them in their lawn, in their house, on their flowers. For many people, the only good bug is a dead bug.

That's too bad. While there are some nasty and ugly insects, most insects are very important to us and an awful lot of them make terrific close-up subjects. Insects are our ever-present neighbors almost anywhere we are. They do a lot of good by cleaning up and recycling dead things, pollinating flowers, aerating soil, providing food for birds and other wildlife—and this list can go on and on.

So for me, photographing and sharing images of insects becomes more than just close-up and macro photography. I truly want to connect people with these amazing fellow creatures on our planet. And this is something that you can do, too; plus, they just can make spectacular subjects for your camera. Once you start looking, you will discover an amazing world of creatures, such as the harmless bee fly in [Figure 10.8](#) or the remarkably colored green sweat bee in [Figure 10.9](#).



ISO 400 • 1/60 sec. • f/8 • 12–60mm lens (Four Thirds)

Figure 10.8 A bee fly rests on a sparkleberry blossom.



ISO 800 • 1/400 sec. • f/8 • 55mm lens (MFT)

Figure 10.9 A green sweat bee is a small native bee that feeds on flower nectar.

Insect Photography Is Wildlife Photography

Many photographers hope for a trip to Africa where they can go on safari and see some amazing wildlife. I hope for a good day and some time in my native plants garden. I find many amazing creatures right here in the U.S., even in my backyard ([Figure 10.10](#)), so I don't feel that I have to spend days traveling in order to find exotic creatures.



ISO 400 • 1/640 sec. • f/8 • 12–35mm lens (MFT)

Figure 10.10 A herd of baby grasshoppers takes over my patio furniture, offering ready subjects—but most will be eaten quickly by birds and other insect predators.

Insect photography truly is wildlife photography. Many of the things that are needed for traditional wildlife photography are also needed for insect photography, including special lenses such as big telephotos, stalking techniques to allow you to get close to the animals, an understanding of animal behavior, and especially, an understanding of habitat and where wildlife lives. If you can get good photographs of insects in the wild, you can actually apply some of your techniques to photographing bigger animals, in places like Africa. You might even find that those bigger animals are less of a challenge for you as a photographer.

Finding Insects

Insects are everywhere, but they can sometimes be hard to find for several reasons. The biggest reason is simply that they are great meals for a lot of predators so they either blend in or hide a lot. Another reason is that a lot of insects are only active at night.

I will guarantee that you will be able to find insects almost anywhere if you pay attention to a few of these ideas:

- Look for flowers. Flowers attract all sorts of insects, as shown

in **Figure 10.11**. Find flowers and you will find butterflies, moths, bumblebees, native bees, honeybees, mud daubers, grasshoppers, ladybugs, shield bugs, aphids, ants, flies, caterpillars, and a whole lot more. Some insects go to flowers for food—either nectar inside the flower or pollen from the stamens. Other insects go to flowers to feed on the leaves and stems nearby. And there will be insects that will come to flowers just so that they can capture and eat the insects that come to flowers!



ISO 200 • 1/2000 sec. • f/5.6 • 60mm lens (MFT)

Figure 10.11 A bald-faced hornet finds a hydrangea flower a good place to rest.

- Pay attention to the time of day. You'll find that insects tend to be less active early in the morning. It can be too wet or too cold to fly for flying insects. Since insects are cold-blooded, i.e., they are dependent on the air temperature to a large degree, many of them need the day to just warm up to become more active.
- Look for insect signs. You can look for evidence that insects are feeding on a plant and then look for whatever is doing that feeding. You can look for cocoons or other evidence of insect growth such as a shed skin. You might even discover insect nests, such as a mud dauber's nest made of mud or a paper wasp's nest made of paper. Neither of those wasps is

particularly aggressive, and you can photograph their nests directly. You don't want to block their flight pattern to the nest, and it will help to have at least somewhat of a telephoto lens.

- Find places certain insects congregate away from flowers, such as food sources or water. In **Figure 10.12**, a paper wasp chews on wood fibers from a patio chair in order to start making paper for its nest. Once I found wasps attacking my chairs, I knew I had a ready source of subjects.



ISO 100 • 1/1250 sec. • f/4 • 90mm lens (APS-C)

Figure 10.12 A paper wasp makes its paper from wood fibers cut from a patio chair.

Getting Close to Insects

Insects can be tricky to get close to. This can be as challenging as getting close to any wildlife. Many insects, such as actively feeding bumblebees, won't pay much attention to you as you photograph them. They are more interested in getting nectar and pollen than in paying attention to you. When an insect is intent on feeding, you will often have opportunities to get close and photograph it.

On the other hand, many, many insects are extremely skittish and can be difficult to approach. Butterflies can seem to be unaware of you until you are just close enough to photograph them and then they fly away. Here are some tips to help you get close:

- Watch your silhouette. Some insects, such as dragonflies, have

excellent eyesight and can spot you many feet away. Most insects, however, can't see all that well but they are very sensitive to light and shadow. They can see a silhouette against the sky because that is something they look for as danger. Be careful of going up to an insect at a height that puts bright sky behind you. This is quite a bit like wildlife photography, because wildlife are also very sensitive to silhouettes against the sky.

- Move slowly and deliberately. Also like other wildlife, insects are very aware of movement around them, especially fast movement, because that can mean a predator is nearby. When you move slowly and deliberately, your movement blends in with the surroundings and will often allow you to get closer.
- Avoid very hot times of day if you can. When it gets hot, many insects become extremely active and very difficult to photograph. If you can find insects in the morning when it is cooler, they will generally not be very active, but then that's also a time they can be hard to find just because of that.
- Find a good spot and sit and wait. This is exactly like wildlife photography, where you will find a prime location for the wildlife and wait for them to come close to you. Pull up a chair beside a blooming flower plant and then sit, watch, and wait. There are some fascinating little native bees that are totally harmless to people and generally will not come anywhere near if you are making much movement around the plant. By sitting, watching, and waiting, you will discover shy insects start coming around, plus you will discover other insects that were holding very still and relying on camouflage.
- Look for insect perches. Insects, such as many dragonflies, damselflies, skipper butterflies, and more will come back to the same perch again and again. If you see an insect perching high on the stem of the plant, for example, find a good place to photograph that stem, then move to that position and wait for the insect to come back (refer back to [Figure 10.8](#)).
- Use a telephoto with extension tubes or another way of focusing close. There are many insects that will not let you get anywhere near them. And if you have photographed wildlife, you'll recognize that behavior as well. By using a telephoto, you can back off a ways from your subject and still get good pictures. This can be really important when photographing butterflies, for example, and was the case in shooting [Figure 10.13](#).



ISO 200 • 1/1600 sec. • f/5.6 • 120–400mm lens (APS-C)

Figure 10.13 Many dragonflies will come back to the same perch again and again. Focus on that perch and wait until they come back.

Spiders

The Even Poorer Image of Spiders

Okay, I admit this, too: most people like spiders even less than insects. I have been photographing them a long time and yet I still find them a bit creepy at times. I'm not sure why, but most of us are uncomfortable with spiders.

In spite of that, spiders can make for outstanding subjects, especially their webs. The cover of this book shows a jumping spider, a truly “cute” spider, if spiders can be cute.

Spiders are also nearly everywhere, just like insects. They are the major predators of any ecosystem, far more important than lions, tigers, bears, and so forth. They also provide food for other, bigger insects and for birds and other animals.

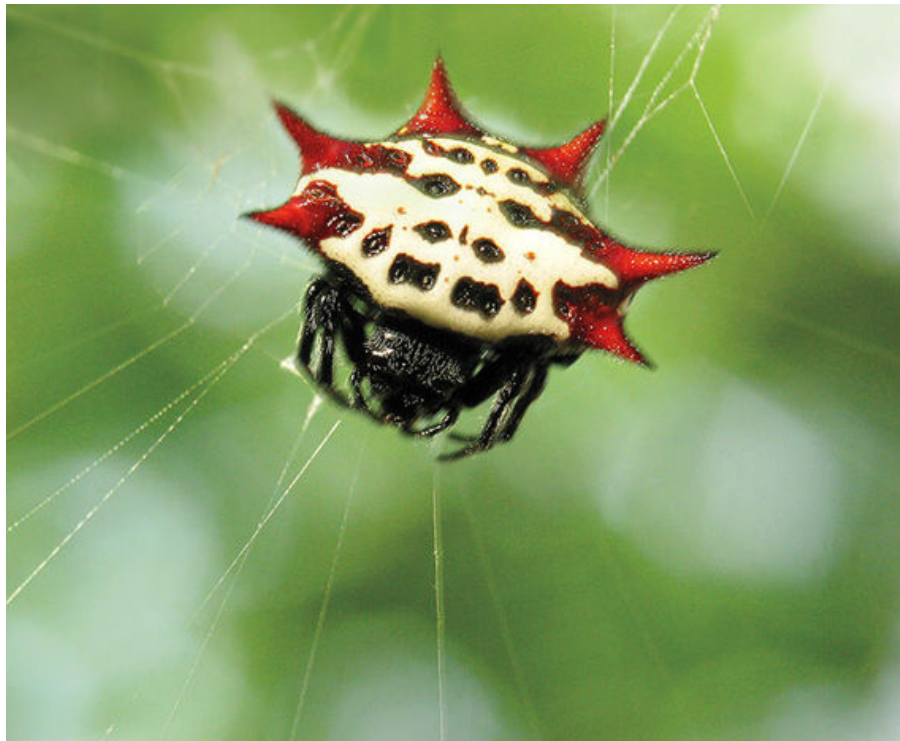
Such a common subject begs for close-up and macro work. As you get close, you might discover amazing struggles of life and death, that rival anything found in Africa, such as is shown in [Figure 10.14](#). There a small jumping spider has captured a daddy longlegs bigger than it is.



ISO 200 • 1/25 sec. • f/4 • 60mm lens (MFT)

Figure 10.14 Jumping spiders are hunting spiders, and this one has caught a daddy longlegs.

But that's not all! Many spiders offer amazing patterns, colors, and shapes not seen anywhere else in nature. The spiny-backed orb weaver seen in [Figure 10.15](#) is a common spider in Florida but is not often appreciated for its striking features because it is quite small.



ISO 100 • 1/30 sec. • f/11 • 50mm lens (Four Thirds)

Figure 10.15 The colors and patterns of a spiny-backed orb weaving spider can only be seen in close-up and macro view. This was shot with flash at a slower shutter speed, which gave the unique, edgy look to the image.

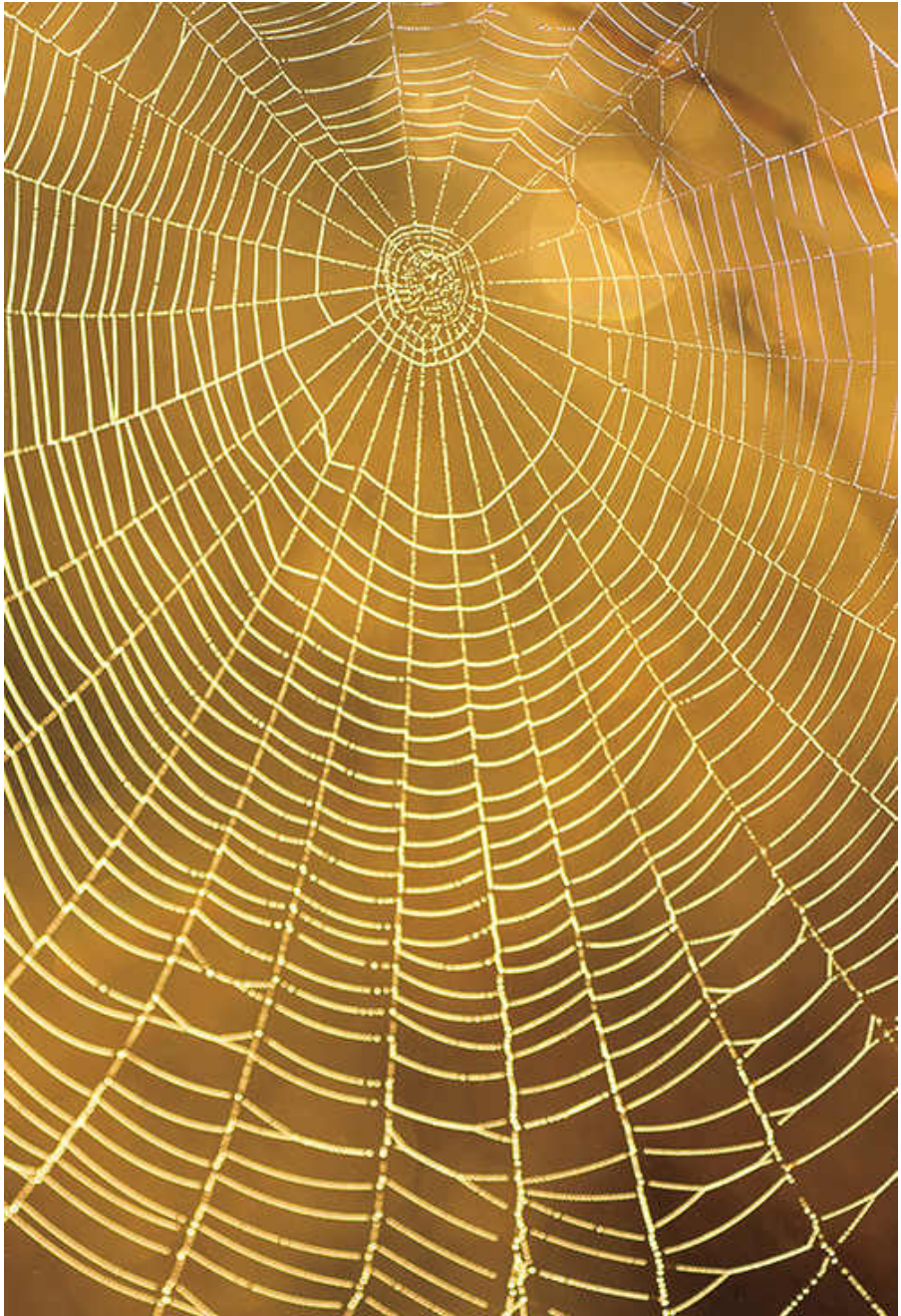
Webs

If you want to work with fascinating close-up and macro subjects, if nothing else, photograph spiderwebs. Spiderwebs come in all sorts of sizes, shapes, and patterns. They include much more than the obvious circular type web made by orb weavers.

Spiderwebs can be found almost anywhere there are spiders—which means almost everywhere! Not all spiders build webs, though all spiders can spin at least one kind of silk (spiders can make up to seven different kinds of silk). Spiderwebs are often found in and around bushes and taller plants. Most of the big web builders create webs in late summer and into fall.

A good time to spot spiderwebs is early in the morning after heavy dew. The dew will stick to the webs and make them show up quite strongly. Webs photographed in early morning sunlight can be especially beautiful.

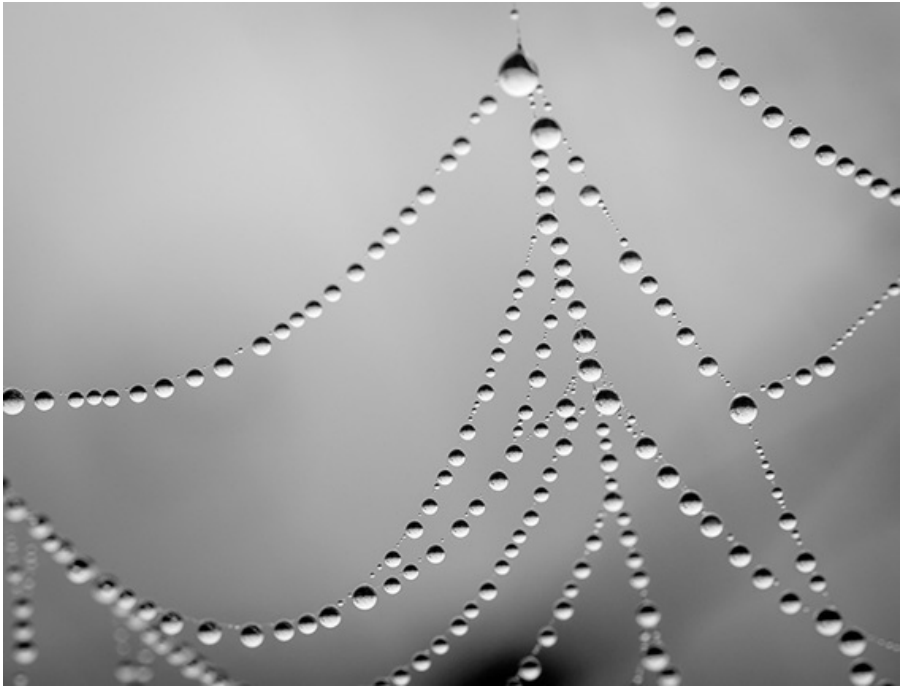
An interesting approach to macro work is to get in close to webs with dew on them, focusing tightly on the dew. In the right light, those water drops can look like jewels, as demonstrated in [Figures 10.16](#) and [10.17](#).



ISO 100 • 1/640 sec. • f/4 • 90mm lens (APS-C)

Figure 10.16 Early morning sun lights up a dew-covered orb

web.



ISO 200 • 1/160 sec. • f/5 • 60mm lens (Four Thirds)

Figure 10.17 A foggy morning leaves water droplets all over a spider web, creating hanging jewels.

Hunting Spiders

When people think of spiders, they usually think of those that construct webs. Even then, most will consider the orb weavers, spiders that build the classic circular web. However, web builders only constitute a little over 50 percent of all spiders. The rest do not build webs, though they all can make silk of some kind. These are the hunters and include some great subject matter.

One of the most fascinating of the hunters is the jumping spider. Jumping spiders truly are the cute spiders of the spider world. They constantly move through plants looking for their prey. They have extremely good eyesight at close distances because they will stalk and then literally jump onto a prey from a distance, just like a big cat, as seen in [Figure 10.18](#).



ISO 200 • 1/80 sec. • f/13 • 90mm lens (APS-C)

Figure 10.18 Jumping spiders will take on prey much bigger than they are.

Because of how they hunt, jumping spiders have big eyes as a part of their array of eyes. All spiders have multiple eyes, usually between six and eight. Most of the eyes can't focus very well and are used more to detect change in brightness and movement. They help the spider avoid being eaten. But the two center eyes of a jumping spider are different than the eyes of most other spiders and give these little critters decent eyesight as well as an interesting face.

Jumping spiders vary quite a bit in size. However, they typically are small enough that you are going to need either a macro lens or extension tubes to get you close enough to photograph them. They can be found almost anywhere, but you'll usually find them crawling around bushes or on the ground below the bushes as they hunt.

They make great subjects. Not only are they simply interesting to see, but because their eyesight is so good, they will actually interact with you, the photographer. It can be very funny to have them move as they react to your hands changing position on a lens. It can be hard to photograph jumping spiders from the side because when they notice you, they will often turn so that they can see you better, like the female regal jumping spider on barbed wire did in [Figure 10.19](#).



ISO 200 • 1/3 sec. • f/3.2 • 60mm lens (MFT)

Figure 10.19 I shot this colorful jumping spider just before sunrise. Even though she was cold, she still turned to face me.

There are many other hunting spiders. One fascinating hunter is the crab spider. These spiders come in a number of colors and sizes, but all have their front two pairs of legs curved out and around like a crab, plus they often move sideways. They are ambush hunters and will hang out in and around flowers waiting for their prey to come by. Many species can even change their color to match the color of a flower, as shown in [Figure 10.20](#).



ISO 200 • 1/500 sec. • f/11 • 60mm lens (Four Thirds)

Figure 10.20 Crab spiders are almost always found in and around flowers and can often match the flower color.

Mosses and Lichens

A Whole Different World

Mosses and lichens are sometimes overlooked as really cool close-up subjects. At the macro level, these organisms can display some remarkable and interesting features that aren't usually noticed at a distance.

Mosses are unique plants that never grow very tall because they do not have a vascular system like most other plants. They are also so small that their leaves are only one plant cell thick, which also leaves no room for specialized cells to deliver water and minerals. In order to grow, they need water close at hand to their leaves because they can't transport the water from roots like other plants can. Mosses have adapted to transport water in a variety of visually interesting ways that make them fascinating subjects up close ([Figure 10.21](#)).



ISO 200 • 1/10 sec. • f/5.6 • 60mm lens (MFT)

Figure 10.21 Moss leaves are very thin and adapt to capture and hold moisture around them.

Lichens also offer some unique visuals when you get up close to them. They are not plants. They are unusual organisms in that they are made up of two different organisms. All lichens are based on a fungus living in a symbiotic relationship with algae, usually a blue-green alga, as seen in [Figure 10.22](#).



ISO 100 • 1/125 sec. • f/13 • 90mm lens (APS-C)

Figure 10.22 A strong sidelight brings out the detail of lichen growing on a birch tree.

Finding Mosses and Lichens

While mosses and lichens can both be found growing in desert conditions, both grow larger and more richly in environments that have good moisture. Even in desert conditions, moss will typically be found in protected places.

Mosses and lichens live both on the ground and on surfaces like rocks and branches, so start looking there. Start looking closer, though, and you will discover all sorts of different shapes and forms, as demonstrated in [Figure 10.23](#).



ISO 100 • 1/20 sec. • f/11 • 12–60mm lens (Four Thirds)

Figure 10.23 A mix of moss (green) and lichens (red and grey) create an interesting macro tapestry.

Mosses grow in a number of interesting ways that create visually interesting patterns, including a tight carpet to a surface, a mounded clump on the ground, a creeping form, and some upright forms, all of which look different and fascinating in photographs ([Figure 10.24](#)). The green of the tiny moss leaves can be very green indeed. Mosses will also create tall spore capsules that often have a contrasting color of red or yellow.



ISO 200 • 1 sec. • f/11 • 12–35mm lens (MFT)

Figure 10.24 A moss carpet is one nice subject that is revealed when you get down and get close.

Lichens come in different colors and three basic forms. There is a crusty form, which is typically found on rocks and similar surfaces, such as gravestones. There is a leafy form, which sprawls over the surface it grows on. And there is a branched form, which can grow inches above the surface where it is attached. The last two forms are

especially common on trees and shrubs ([Figure 10.25](#)).



ISO 200 • 1/50 sec. • f/4 • 60mm lens (MFT)

Figure 10.25 At a true macro level, lichens gain visibility for their unique forms and structures.

Lichens grow well when they have good light, little competition around them (both of which are good reasons why they often end up on rocks), and good air. In fact, lichens are indicators of the quality of air, and so often don't grow in cities where the air quality is poor.

Some Special Tips for Moss and Lichens

Most of the time, the fine detail of both moss and lichens is worth showing off. That means paying careful attention to getting the most sharpness from your camera and lens (review [Chapter 4](#)). You also need to get down low because some of the most interesting mosses are right down on the ground. Mosses can be especially a problem when they are growing in the shade of deep woods. Here are some specific tips:

- Get and use a beanbag. You can find beanbags that will fit inside your camera bag so that you always have them with you (one is always in my bag). I find them extremely helpful for photographing small things on the ground like moss (as used for [Figure 10.26](#)) and sometimes lichens. Beanbags don't always have to go right on the ground, either. Sometimes I

need a little bit of height so I will put them on a rock, a piece of wood or something that gives me the height I need, yet is still lower than on a tripod.



ISO 200 • 4 sec. • f/13 • 12–35mm lens (MFT)

Figure 10.26 A beanbag on a rock helped stabilize the camera for a 4-second exposure of this close shot of moss.

- If you start doing a lot of very low close-up work, make sure that your tripod allows you to get down low. You need to be able to unlock the legs of your tripod and spread them out to a wider angle so that your tripod head drops lower. You probably will need to be able to remove the center column of the tripod because it will get in the way as you try to get lower.
- Often, lichens and mosses are on a fairly flat surface without a lot of depth (such as shown in the [“Poring Over the Picture”](#) photo at the front of this chapter). In order to get the best sharpness, you can work to keep the back of your camera parallel to the surface these organisms are growing on. The plane of focus for your camera and lens is parallel to the back of your camera. So when you make that camera parallel, you are also keeping your plane of focus parallel, which means that more of your focus will reside on a flat subject.

Details and Abstracts

Tiny Details

The tiny details of the world all around us can make wonderful subjects for close-up and macro photography. I'm talking about the little details that don't fit into the other categories that I've talked about in this chapter. These can be little pieces of plants, fractions of rocks, many abstract designs that someone else might not even be able to identify—though they will find the picture very attractive.

Because these are not necessarily obvious subjects, they can be easily overlooked. Brightly colored flowers, unique insects, and colorful lichen patterns are easy to see as subjects. When you start going after details and abstracts, you are looking for interesting things that can make good photographs rather than simply trying to make good photographs of specific subjects. Even simple water droplets on a leaf can make an interesting image, such as that in [Figure 10.27](#).



ISO 200 • 1/400 sec. • f/2.8 • 50mm lens (APS-C)

Figure 10.27 Water droplets on a leaf reflect the sky for an interesting pattern.

Plant Details

Plants are much more than just their flowers, so when you start looking beyond the flowers, you're going to find all sorts of interesting possibilities for your photography. Leaves are an obvious choice. Leaves come in many shapes and sizes as well as different colors. Up

close, you'll discover all sorts of textures and patterns that aren't that visible from a distance. In addition, leaves give you a whole range of colors throughout the seasons.

Tree bark is another interesting bit of subject matter for the camera. Tree bark comes in all sorts of forms, textures, and patterns. Get up close to a tree trunk and then just start exploring. Experiment with different compositions and you will discover all sorts of unique things there.

Buds, curled tendrils ([Figure 10.28](#)), fruits, berries, and seeds ([Figure 10.29](#)): All of these make for interesting close-up photographs. And it doesn't matter what time of year it is or where you live, there are always intriguing plant details to be found, even in winter. You just have to get out and explore with your camera and lens. One thing I find very interesting about this type of photography is that you sometimes don't even find a photograph until you bring your camera into position and start looking to see what the camera and lens finds as you move them around.



ISO 200 • 1/40 sec. • f/4 • 60mm lens (MFT)

Figure 10.28 A tendril from a wild cucumber anchors the plant on a twig.



ISO 200 • 1/180 sec. • f/11 • 60mm lens (MFT)

Figure 10.29 A soft light enhances milkweed seeds and their “parachutes.”

Rock Patterns

You don’t have to be a rock hound to appreciate the macro details of rocks. When you get in close to a rock and start looking, you’ll see all sorts of patterns, textures, even colors that can make for interesting photographs. These often offer abstract designs simply because when you get in so close that you don’t see the edges of the rock, the viewer can have a hard time knowing what they are seeing. For example, [Figure 10.30](#) looks at first like an aerial shot of a river. That can be very interesting and a good challenge for the viewer.



ISO 400 • 1/200 sec. • f/16 • 90mm lens (APS-C)

Figure 10.30 This is a detail of a small rock, but the tight composition makes it look like an aerial photo.

One thing that will be fairly clear in rocks is a fossil. Fossils can be fascinating for close-up subjects. Many fossils are very small and don't show up very well without some sort of magnification, which comes from close-up and macro work. Fossils are found throughout the country in sedimentary rock, and anywhere that sort of rock is found, you can start looking for these unique subjects. The fossil crinoids of [Figure 10.31](#), which were found next to the Colorado River in Utah, look almost like some ancient hieroglyphics.



ISO 100 • 1.5 sec. • f/13 • 12–60mm lens (Four Thirds)

Figure 10.31 These crinoids' fossils show pieces of ancient ocean animals.

Abstract Close-Ups

Abstract close-ups and macro shots show off the world in patterns, shapes, and colors that are often unrelated to the subject itself. In fact, a viewer of such images might not even know what the subject is. Kids' magazines often love to show such photos and ask the reader to guess what the subjects are. But as a photographer, you might not care whether someone guesses that or not—it is the beauty of the graphic design in the image that is important, not the subject.

A good friend of mine loves to go out among a bunch of flowers with his macro lens and just start looking for abstract designs. He calls it his macro therapy because he can do it almost any time flowers are blooming in his garden (and even in winter if he buys some plants).

Abstract designs can be found everywhere once you start looking up close. These designs are not necessarily obvious. They certainly aren't obvious to the average person, who will go right on by them without stopping to look. Most people would see [Figure 10.32](#) in real life as just some leaves with insect damage.



ISO 200 • 1/640 sec. • f/8 • 60mm lens (MFT)

Figure 10.32 You know this is a pattern of leaves, but the graphic design of lines, shapes, patterns, and colors takes over the photo.

Because you are now more attuned to what is possible up close, you will start seeing such photo opportunities as you do in other types of photography. You don't have to be like my friend and only go out and shoot abstract designs, though that's an interesting exercise to do. Just be open to possibilities as you are in tight on a subject and you will find such opportunities as seen in [Figure 10.33](#).



ISO 200 • 1/1600 sec. • f/2.8 • 60mm (MFT)

Figure 10.33 A tight shot of a backlit leaf with shallow depth of field creates an abstract design of pattern and color.

Combining the Landscape With the Close-Up

It is not by coincidence that I have done a book on landscape photography and one on close-ups for the From Snapshots to Great Shots series. These are two of my favorite types of photography and I have shot extensively all over the country capturing both types of images in diverse locations.

It is rare that I would go out and only photograph close-ups or landscapes. I simply don't think that way. Early in my career as a photographer, I was a photojournalist for a small magazine, plus I studied photojournalism in college and worked on the college paper as a photographer. As a photojournalist, I was always looking for the story, and in those days of publications, that usually meant multiple photos to tell that story.

Combining landscape and close-up photography at a location lets you tell a much greater story than could ever be told with a single image. Look at [Figures 10.33](#) and [10.34](#). Either one alone is fine as a photo, but together, they tell a story about a place that creates a bigger impression than either photo alone. Today, it is so easy to shoot both and to display both on everything from a tablet to a slide show to a display on the wall—so why not!



ISO 100 • 1/25 sec. • f/11 • 18–55mm lens (APS-C)

Figure 10.33 Lichens grow tight to the rocks of the landscape in [Figure 10.34](#).



ISO 100 • 1/320 sec. • f/11 • 18–55mm lens (APS-C)

Figure 10.34 The rocky landscape of Alabama Hills, California, creates more of an impression when paired with [Figure 10.33](#).

This will expand your possibilities at any location you visit, immediately giving you additional ideas on what to photograph. Now

if you are in a spectacular national park, you might first see some stunning vistas, but you won't stop there. You'll also start looking around for some cool close-ups that express a different view of the location. In fact, while you may only find one or two ways of getting the best shot of that landscape, you will usually find a whole lot of different close-ups to photograph.

Conclusion

What will you find? There is an amazing world of unusual and interesting subjects up close. Your close-up work will help you see your subjects, such as the swallowtail butterfly in [Figure 10.35](#), better than ever before. Just getting close can give you a whole new connection to nature.



ISO 200 • 1/160 sec. • f/8 • 60mm (MFT)

Figure 10.35 The light gives this close-up caterpillar a unique look.

This chapter offers you a few ideas of what to look for and how to find different subjects, but this is only the beginning for anyone willing to get down and dirty with close-up and macro photography. Sometimes that's indeed what it takes—getting down on your knees in the dirt and looking carefully for one-of-a-kind photographs.

I know you will find great photographs that are unique to your vision of the world around you. This can start in your garden, in a patch of what other people might see as weeds growing alongside the road, or

even at the foot of an icon in a big national park. Close-up and macro photography will expand both your photography and your view of the world.

Chapter 10 Assignments

Try a flower portrait

Find an attractive flower that can be isolated from other flowers around it. If it's winter, go buy an inexpensive flower at the grocery store. Set up your camera at the "eye level" of the flower and start shooting. Try moving the camera from side to side to change the background and what you see of the flower. Try a telephoto with a wide aperture to keep a simple, blurred background.

Make friends with a bug

I know that not everyone is comfortable around insects, but they are such great subjects that it is worth finding some insect that you can photograph. Use a telephoto if you have to so you don't need to be so close. Go out to some flowers and there will usually be an insect that you will find interesting even if you don't like bugs in general. It can be worth the effort.

Take spiderific photos

Remember that spiders are all around us. While many spiders will creep anyone out, spiderwebs are beautiful examples of their art, art that you can photograph. Don't just look for the big, circular orb webs. Go out into your yard and discover the spiderwebs there. Get in close and discover their unique character, then photograph that.

Examine a lichen

Lichens look so much better up close than from a distance. They might just look like paint splotches from afar, but get up close with your lens and find out what they really look like. Look for interesting patterns and textures that you can frame up in a composition. Remember to keep your camera parallel to crustose lichens (that's what the crust-like lichens on surfaces like rocks are called) for optimum focus and sharpness.

Experience macro therapy

Put your close-up gear on your camera and go out to a patch of

flowers, a big tree trunk, or even a bunch of rocks. Now without thinking about this subject matter from a distance, just get in close and start exploring what your camera sees. Find out what the flowers or tree or rocks look like when you are close enough that the subject's form disappears. Discover this by looking through your viewfinder as you move through the flowers, around the tree trunk, over the rocks, across other details, and then look for interesting designs you can capture as a photo.

Share your results with the book's Flickr group!

Join the group here: https://www.flickr.com/groups/macro_fromsnapshotstogreatshots/

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